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VOL. II.—7TH YEAR. SYDNEY: SATURDAY, JULY 17, 1920. No. 3.

INTRAVENOUS INJECTIONS IN THE TREATMENT OF HÆMORRHAGE AND SHOCK.

By **A. Holmes à Court, M.D. (Sydney), M.R.C.P. (London),**
Honorary Assistant Physician, Sydney Hospital.

(Continued from Page 30.)

B.—Infusion of Colloidal Solutions.

The problem of providing a satisfactory substance to replace blood for intravenous injection has occupied the minds of physiologists and other workers for many years. Bayliss (26) appears to have been the first to advocate the use of a colloidal solution of gum acacia to restore the circulation in conditions of shock and hæmorrhage. The solution used was made according to the following formla:

Sodium chloride	2 grammes
Potassium chloride	0.05 gramme
Calcium chloride	0.05 gramme
Powdered gum acacia	5 grammes
Distilled water	100 c.cm.

The technique of preparation as laid down by Bayliss should be rigidly followed. A clear, pale, opalescent solution is then produced and may be kept stored indefinitely in milk-bottles with rubber stoppers.

The solution possesses the viscosity of blood and the osmotic pressure of its colloids. Consequently, such a solution does not leave the blood vessels by osmosis.

In a study of a large series of cases treated by the infusion of this solution, Cannon, Cowell, Fraser and Hooper (27) found that in cases of shock and hæmorrhage of moderate severity the blood pressure invariably rises within a few minutes of the infusion.

In a minute analysis of thirty-five cases of various injuries producing shock and hæmorrhage, Drummond and Taylor (28) record an average rise of 27.9 mm. Hg., the average blood pressure before injection being 70 mm. Hg. and the average amount of fluid injected 500 c.cm.. Twenty cases treated by gum infusion are described in detail under Section VII..

C.—Infusion of Alkaline Solutions.

The intravenous injection of a 4% solution of sodium bicarbonate has been advocated for the treatment of the lowered blood pressure in shock. This was based on the assumption that a diminution of alkali reserve occurred early in the process of circulatory failure, whereas we have seen that the acidosis is a terminal phenomenon. Apart from the possibility of neutralizing acid, a 4% solution of bicarbonate of soda would appear to be of no more value in restoring blood volume than a hypertonic solution of sodium chloride, since the process of osmosis would occur in either case. The field of usefulness for alkaline injections would therefore appear to be restricted to morbid conditions in which there is a definitely increased acid production in the body, such as the acidosis of diabetes or of infection by gas-producing orgnisms. The use of alkaline injections in gas infections has been strongly advocated by Sir Almroth Wright and others. In cases of shock or hæmorrhage, however, the injection of alkaline solution can only be regarded as fulfilling a symptomatic indication for treatment, seeing that acidosis is merely a sign of a morbid process and not a clinical entity, *per se*. The logical plan of treatment is to prevent the production of acid by insuring an abundant supply of oxygen, which is to be effected by restoring the circulation.

D.—Normal Saline Infusion.

For some years the intravenous injection of normal saline solution was advocated and extensively used to restore the circulation in shock and to replace fluid lost by hæmorrhage. The clinical results have been, however, on the whole, disappointing.

All modern writers on this subject agree that the intravenous injection of normal saline solution, although producing a transient rise of blood pressure, is useless for the purpose of restoring blood volume. Blood pressure observations indicate that the injection of saline solution usually causes an immediate rise, followed in 20 to 30 minutes by a fall, the pressure eventually falling lower than the level recorded before infusion began.

Measurements of the specific gravity of the blood have shown that salt solutions leave the circulation in less than half an hour, the specific gravity at first falling and subsequently rising. This has been shown to be a physical question of osmosis and filtration, the vessel wall being a membrane permeable to salts, impermeable to colloids. Lazarus Barlow and others have demonstrated that the injection of normal saline solution produces a condition of "hydræmic plethora," a dilution and increase of the total volume of the blood. The excess of fluid is, however, rapidly excreted by the kidneys and the skin. There is profuse perspiration and consequent loss of body heat. Eventually the blood becomes less in bulk than before.

Crile (29), in an instructive series of experiments on dogs, has demonstrated conclusively that, whereas after severe loss of blood the blood pressure could not be restored by saline infusion, transfusion of fresh blood was invariably successful, provided always that the vasomotor centre had not suffered irreparable damage from the prolonged anæmia. Clinical observation of numbers of cases treated by normal saline infusion entirely bears out these conclusions.

E.—Hypertonic Saline Solution.

The results recorded from the use of hypertonic saline infusion in shock and hæmorrhage have been only slightly, if at all, better than those following normal saline solution. The use of hypertonic saline solutions was advocated on the ground that fluids would be attracted from the tissues by osmotic pressure. But since the vessel wall is permeable to salts, the salt concentration on either side of the vessel wall must eventually become equal. Moreover, the concentration of the colloids of the blood has been reduced, both by the fluid injected and the liquid absorbed from the tissues. Hence the final condition is identical with that resulting from the injection of isotonic saline solution and the results as regards in-

creasing blood volume and blood pressure are again purely transitory.

The routine use of these solutions has therefore been abandoned in the treatment of shock and hæmorrhage. Their value in cholera, typhoid fever and other toxic conditions in aiding the elimination of toxin is an entirely different question. It has recently been shown by Moore (30) that in such conditions, free saline in the blood combines with the toxins to form a crystallo-colloidal union and that this is an essential factor in excretion of the poisons by intestine and kidney.

F.—Critical Review of Methods Employed.

Practical observations and theoretical consideration leave no room for doubt that of the fluids used for intravenous injection in the class of cases under consideration, blood and colloidal solutions are of infinitely greater value than any of the other fluids considered. It has been shown that saline solutions are of little use in restoring blood volume and that their action is purely transitory. Should neither blood nor gum be available, it would appear reasonable to endeavour to tide over an emergency by the use of hypertonic saline solution, in the hope of temporarily improving the efficiency of the vasomotor mechanism, possibly until a blood donor could be made available.

It has already been indicated that colloidal solutions can be efficient in restoring the circulation only when a certain percentage of hæmoglobin remains for efficient oxygenation. It would appear almost an axiom that, were blood and gum solution equally accessible, blood should be preferred in all cases. As the difficulty of procuring suitable donors is sometimes great and the technique of blood transfusion is more difficult than a simple intravenous injection of gum solution, it follows that gum must be regarded as a most useful therapeutic agent when the question is merely that of restoring blood volume.

Gum infusion should be performed by exposing a vein by dissection, allowing the fluid (which should be warmed to body temperature) to run in slowly, the injection of 600 c.cm. occupying from fifteen to twenty minutes, thus allowing the vascular system to accommodate itself to the increased bulk of fluid.

Relative Values of the Methods of Transfusion.—(*a*) The "Direct-Indirect" Method, Using Kimpton's Flask.—This method was adopted in twenty cases of the series and appears to be the most expeditious where circumstances allow the patient and donor to be in relative proximity and where there is no necessity to store the blood. Paraffin coating of flasks by an ethereal solution of paraffin wax is more satisfactory than the methods formerly in vogue.

(*b*) The "Citrate" Method.—This method, using the apparatus described, is easy of application and allows blood to be collected beforehand. It was applied successfully in twenty cases of this series and the results appeared to equal those obtained by the use of "whole" blood. The need for warming the solution to body temperature before injection may cause inconvenience. The method is, however, by far the most suitable when working under conditions where asepsis is attained with difficulty.

(*c*) "Preserved" Blood.—In the absence of a readily available supply of blood donors, this method possesses the advantage that the corpuscles may be kept; the relatively elaborate technique of preservation makes its use restricted.

Preserved blood might be found to have a sphere of usefulness if kept in store in large hospitals, especially those dealing with large numbers of cases of railway and other accidents, traumatic amputations and such urgent casualties. The method might also be found suitable for dealing with ante- and post-partum hæmorrhages, ruptured ectopic gestation and similar cases in obstetric and gynæcological hospital practice.

IV.—Synopsis of Results in Cases Recorded.

Classification.

To simplify comparisons, the following classification of cases has been adopted in this synopsis:

A. Cases of hæmorrhage with minor degrees of shock.

B. Cases of shock (moderate) with hæmorrhage (moderate to profuse in amount).

C. Cases of shock (severe) with hæmorrhage (severe).

D. Cases of extreme traumatic shock, with or without great loss of blood.

Cases I. to XX. were treated by transfusion of whole blood, the average amount of blood transfused being 510.7 c.cm..

Cases XXI. to XL. were treated by transfusion of citrated blood, the average amount of fluid injected being 737.5 c.cm..

Cases XLI. to LX. were treated by gum infusion, the average amount of fluid infused being 647.5 c.cm..

Results.

Of the 60 patients treated, 11, or 18%, died. The remaining 49 were passed on in good condition and the subsequent history was followed whenever possible. In no fatal case can any ill-effect be reasonably ascribed to the intravenous injections, improvement being almost invariably noted, except in cases of extreme shock, such as Nos. XIV., XVII., XXIX., LIV., LIX., in whom the vital centres must obviously have undergone irreparable damage before treatment.

The mortality must be regarded as low, when it is considered that in dealing with large numbers of wounded transfusion or infusion was employed only in the worst cases; the patients obviously moribund on admission are disregarded.

V.—Conclusions.

A.—Hæmorrhage.

1. Life can be maintained after a loss of five-sixths of the total blood, so long as the blood volume is rapidly restored.

2. Restoration of the circulation is most effectively achieved by blood transfusion.

3. Citrated blood appears to be as effective as whole blood and is more convenient to handle when working under adverse conditions.

4. Preserved blood may be used in cases where no blood donors are readily available, provided adequate facilities exist for the preservation and storage of the blood cells.

5. Infusion of gum acacia is effective in restoring the circulation so long as the loss of hæmoglobin has not been excessive. This method is particularly suit-

Synopsis of Results.

Classification	Serial Number.	Condition Before Treatment.		Treatment by Intravenous Injection.	Condition After Treatment.		Result.	Remarks.
		Pulse Rate, per min..	Blood Pressure, mm., Hg..		Pulse Rate, per min..	Blood Pressure, mm., Hg..		
A	II.	Radial pulse imperceptible	Not record'd	Blood transfusion (800 c.cm.)	120	100	Recovered	———
A	VI.	——	——	Blood transfusion (700 c.cm.)	140	——	Marked improvement followed transfusion	Patient died from gas gangrene
A	VIII.	144	70	Blood transfusion (500 c.cm.)	118	95	Condition improved	Femoral vessels tied under local anæsthesia; end result unknown
A	XIII.	152	——	Blood transfusion (500 c.cm.)	120	——	Recovered	Circumflex artery ligatured under N_2O and O anæsthesia
A	XXXVI.	136	——	Blood transfusion (800 c.cm. citrated)	100	115	Recovered	Popliteal vessels ligatured; limb subsequently amputated
A	XLI.	——	——	Gum infusion (750 c.cm.)	96	120	Recovered	Left common carotid artery was tied under ether
A	XLII.	140	——	Gum infusion (600 c.cm.)	112	94	Recovered	Brachial artery ligatured under N_2O and O anæsthesia
A	XLVI.	126	78	Gum infusion (750 c.cm.)	100	110	Recovered	Brachial artery and vein ligatured under N_2O and O anæsthesia
B	III.	144	——	Blood transfusion (500 c.cm.)	128	95	Condition improved	End result not ascertained
B	XI.	144	95	Blood transfusion (1,000 c.cm.)	100	115	Condition improved sufficiently to allow amputation through upper third of the tibia under N_2O and O anæsthesia	———
B	XII.	Radial pulse imperceptible	——	Blood transfusion (500 c.cm.)	120	115	Marked improvement	Subsequent progress satisfactory
B	XV.	——	——	Blood transfusion (650 c.cm.)	110	100	Marked improvement followed transfusion	Subsequent reports satisfactory
B	XX.	138	——	Blood transfusion (500 c.cm.)	100	——	Improved	Evacuated to hospital in good condition after 24 hours
B	XXIV.	154	——	Blood transfusion (700 c.cm. citrated)	112	125	Improvement very striking	Died 48 hours later from infection by gas-forming organisms
B	XXVIII.	140	——	Blood transfusion (500 c.cm. citrated)	86	——	Recovered	Vomited during transfusion; improved immediately afterwards
B	LII.	144	70	Gum infusion (500 c.cm.)	94	110	Recovered	———
B	LX.	156	——	Gum infusion (700 c.cm.)	92	110	Respiration rate fell from 40 to 28 after closure of chest wound and gum infusion	Subsequent recovery

(Continued on next page.)

Synopsis of Results—Continued.

Classification	Serial Number.	Condition Before Treatment.		Treatment by Intravenous Injection.	Condition After Treatment.		Result.	Remarks.
		Pulse Rate, per min..	Blood Pressure, mm., Hg..		Pulse Rate, per min..	Blood Pressure, mm., Hg..		
C	I.	154	80	(1) Sodium bicarbonate & glucose solution (600 c.cm.). (2) Blood transfusion (800 c.cm.)	90	120	Condition improved after transfusion	Patient recovered
C	IV.	144	—	Blood transfusion (500 c.cm.)	100	120	Improvement followed closure of chest wound	Evacuated to hospital in good condition
C	V.	Radial pulse imperceptible	—	Blood transfusion (500 c.cm .)	144	—	Improved	Evacuated in good condition
C	IX.	136	—	Blood transfusion (500 c.cm.)	100	—	Pulse tension good two hours later	Subsequent history unknown
C	X.	Pulse imperceptible	—	(1) Gum infusion (400 c.cm.). (2) Blood transfusion (500 c.cm.)	100	—	Temporary improvement after gum-blood; improved condition permanently, allowing operation ligature of femoral artery) under ether	Subsequent progress satisfactory
C	XVI.	Barely perceptible	—	Blood transfusion (500 c.cm.)	96	—	Remarkable improvement after transfusion	Evacuated two hours later in excellent condition
C	XIX.	142	—	Blood transfusion (750 c.cm.)	120	110	Condition improved	Leg amputated under N_2O and O anæsthesia
C	XXII.	Pulse imperceptible; heart rate, 168	—	Blood transfusion (800 c.cm. citrated)	118	112	Improved	Recovered
C	XXIII.	Pulse imperceptible	—	Blood transfusion (750 c.cm. citrated)	136	—	After half an hour pulse strong (114)	Progress satisfactory
C	XXV.	Pulse imperceptible	—	(1) Blood transfusion (800 c.cm. citrated). (2) Blood transfusion (1,000 c.cm.)	130	90	Condition improved after transfusion	Patient died on fourteenth day from lobar pneumonia
C	XXVI.	116	Tension low	Blood transfusion (750 c.cm. citrated)	98	120	Evacuated in good condition	Subsequent history unknown
C	XXX.	132	—	Blood transfusion (600 c.cm. citrated)	100	—	Improved after transfusion	Subsequent history unknown
C	XXXIII.	Pulse imperceptible	—	Blood transfusion (750 c.cm. citrated)	86	116	Improved after transfusion	Amputation of arm under N_2O and O anæsthesia
C	XXXV.	128	Pulse soft	Blood transfusion (750 c.cm. citrated)	90	—	Improved	Subsequent progress satisfactory

(Continued on next page.)

Synopsis of Results—Continued.

Classification	Serial Number.	Condition Before Treatment.		Treatment by Intravenous Injection.	Condition After Treatment.		Result.	Remarks.
		Pulse Rate, per min..	Blood Pressure, mm., Hg..		Pulse Rate, per min..	Blood Pressure, mm., Hg..		
C	XXXVII.	144	——	Blood transfusion (700 c.cm. citrated)	116	——	Improved	Amputation through lower third of thigh; progress satisfactory
C	XXXIX.	132	80	Blood transfusion (650 c.cm. citrated)	104	95	Condition good after operation	Amputation through upper third of humerus; progress satisfactory
C	XLIII.	144	70	Gum infusion (600 c.cm.)	110	100	Evacuated in good condition	Amputation of arm
C	XLV.	146	74	Gum infusion (600 c.cm.)	130	100	Improved	Subsequent history unknown
C	XLVII.	Not stated	——	Gum infusion (750 c.cm.)	148	84	Improved greatly after infusion	Died 76 hours later from gas gangrene
C	XLVIII.	134	76	Gum infusion (600 c.cm.)	130	100	Marked improvement	Further progress unknown
C	L.	130	68	Gum infusion (600 c.cm.)	136	100	Improved after infusion	Progress satisfactory
C	LV.	146	Soft pulse	Gum infusion (600 c.cm.)	110	——	Vomited after infusion	Brachial vessels ligatured; improved after operation
C	LVI.	132	60	Gum infusion (600 c.cm.)	90	100	Marked improvement after infusion	Radial artery ligatured
C	LVIII.	140	Very soft pulse	Gum infusion (500 c.cm.)	116	——	Much improved	Subsequent reports satisfactory
C	LIX.	138	——	Gum infusion (650 c.cm.)	126	——	Pulse became weaker during infusion; improved fifteen minutes later	Died ten hours later from shock
D	VII.	144	——	(1) Blood transfusion (150 c.cm.). (2) Gum infusion (1,000 c.cm.)	120	115	Condition improved, rendering operation possible	Double amputation above knee under N_2O and O anæsthesia; twenty-four hours later pulse 110, blood pressure 115 mm. Hg.; progress satisfactory
D	XIV.	Pulse imperceptible	——	Blood transfusion (400 c.cm.)	Heart rate, 204	——	No improvement after transfusion	Died five hours later; a case of profound shock, not improved by transfusion
D	XVII.	Pulse imperceptible	——	Blood transfusion (1,000 c.cm.)	——	——	No improvement	Died on table three-quarters of an hour after commencement of abdominal operation
D	XVIII.	130	——	Blood transfusion (500 c.cm.)	120	——	Recovery	Resection of bowel
D	XXI.	Pulse imperceptible	——	(1) Gum infusion (400 c.cm.). (2) Blood transsion (800 c.cm. citrated)	128	110	Evacuated to hospital in good condition	Recovery; reports received five weeks later
D	XXVII.	Pulse imperceptible	——	Blood transfusion (950 c.cm. citrated)	Perceptible	——	Patient became fully conscious after transfusion	Extreme shock, not benefited by transfusion; died three hours later
D	XXIX.	Not record'd	——	Blood transfusion (800 c.cm. citrated)	——	——	No improvement	Died 24 hours after injury

(Continued on next page.)

Synopsis of Results—Continued.

Classification	Serial Number.	Condition Before Treatment.		Treatment by Intravenous Injection.	Condition After Treatment.		Result.	Remarks.
		Pulse Rate, per min..	Blood Pressure, mm., Hg..		Pulse Rate, per min..	Blood Pressure, mm., Hg..		
D	XXXI.	138	Pulse soft	Blood transfusion (700 c.cm. citrated)	136	84	Recovery	Transfusion rendered patient able to withstand laparotomy
D	XXXII.	112	70	Blood transfusion (600 c.cm. citrated)	96	——	Much improved by transfusion	End result unknown
D	XXXIV.	Pulse imperceptible	——	Blood transfusion (700 c.cm. citrated, 600 c.cm. whole)	114	98	Condition improved after second transfusion	Amputation of leg under N_2O and O anæsthesia; 36 hours later progressing well
D	XXXVIII.	Pulse imperceptible	——	Blood transfusion (700 c.cm. citrated)	124	——	Recovery	——
D	XL.	Pulse imperceptible	——	Blood transfusion (900 c.cm. citrated)	86	120	Improved by transfusion	Amputation of arm (right) under N_2O and O anæsthesia; subsequent reports satisfactory
D	XLIV.	Pulse imperceptible	——	Gum infusion (800 c.cm.)	154	70	Transient improvement	Died two hours after infusion
D	XLIX.	140	Pulse soft	Gum infusion (550 c.cm.)	98	120	Marked improvement after infusion	Evacuated in good condition
D	LI.	128	Pulse very soft	Gum infusion (500 c.cm.)	100	——	Improved	Vomited during infusion and sweated profusely; evacuated in good condition
D	LIII.	144	76	Gum infusion (1,000 c.cm.)	130	100	Improved by infusion	Arm amputated under N_2O and O anæsthesia; evacuated in good condition
D	LIV.	Pulse imperceptible	——	Gum infusion (800 c.cm.)	104	Tension low	Temporary benefit from infusion	Left leg amputated at knee; died eight hours later
D	LVII.	136	——	Gum infusion (500 c.cm.)	112	Pulse stronger	Improved by infusion	Died 24 hours later from peritonitis

able for patients suffering from hæmorrhage of moderate degree.

6. Saline infusions (both isotonic and hypertonic solutions) can effect only a transient restoration of blood volume, a fall of blood pressure occurring within twenty to thirty minutes after intravenous injection. Such solutions are therefore of little use in acute hæmorrhage.

B.—Shock.

1. Blood transfusion is of the greatest value in the treatment of wound shock; it should be equally applicable to the treatment of post-operative shock in civil practice.

2. Improvement after transfusion is most marked in cases of shock which are complicated by hæmorrhage.

3. The treatment of acute primary shock should be based on the general principles laid down in Section II.: rest, relief of pain, application of warmth. These conditions place the circulatory mechanism in the most favourable position to recover its function. Transfusion is most effective when applied early, before the vital centres have been extensively damaged, as a result of impoverished circulation.

4. In extreme degrees of primary shock, with evidence of profound depression of the vital centres and failing cardiac contraction, the addition of gum solution to the blood stream might be calculated to have the effect of diluting the available corpuscles and at the same time of increasing the mechanical difficulties of the circulation. Blood transfusion is, therefore, to be preferred to gum infusion in these cases.

5. Gum infusion is a valuable agent in the treatment of shock of moderate degree. It should be applied immediately in such cases when blood transfusion is not possible, owing to the absence of blood donors.

6. Transfusion of blood is more effective than infusion of colloidal solutions in shock.

7. Infusion of saline solutions (isotonic and hypertonic) is contra-indicated.

8. Infusion of alkaline solutions is not indicated.

C.—General.

1. In blood transfusion we possess the most remarkable means of restoring the circulation after traumatic hæmorrhage or shock. It has been the writer's common experience to watch a pallid, exsanguinated patient gradually assume a healthy, ruddy colour as

the new blood entered his depleted vessels. No more strikingly effective therapeutic measure can be imagined in the realms of medicine or surgery.

2. If the hæmorrhage has been so profuse or the shock so profound that the vasomotor and other vital centres have been injured irreparably by the severe anæmia, no ultimate good can be expected to follow the introduction of blood or any artificial fluid. The actual blood loss required to produce this condition has not been finally determined.

3. Clinically it has been found that the factor of time is of the utmost importance.

A patient transfused immediately the symptoms of oxygen starvation appear may recover. If, however, these symptoms have persisted for a considerable time and especially if the patient complain of a sensation of pain and constriction in the region of the insertion of the diaphragm, additional blood does not seem to avail. The prognosis is invariably bad in such cases.

4. In primary traumatic shock of the most extreme severity and in patients apparently moribund the writer has been led by numerous observations to conclude that it is advisable to employ general methods of resuscitation and await, if possible, some evidence of returning animation before commencing transfusion.

Otherwise transfusion may be performed in cases where the organism has been damaged beyond hope of recovery and discredit brought upon a most valuable therapeutic measure undeservedly.

Note on the Application of Blood Transfusion to Morbid Conditions Other Than Traumatic Hæmorrhage and Shock.

I.—Pathological Hæmorrhage.

(*a*) Typhoid ulceration of intestine.
(*b*) Hæmorrhage from gastric ulcer.
(*c*) Ruptured ectopic gestation.
(*d*) Puerperal hæmorrhages.

Transfusion of blood is indicated to restore blood lost in conditions such as the above. Good results have been recorded in cases of hæmorrhage in typhoid fever by Crile and others.

II.—Hæmorrhagic Diseases.

(*a*) *Hæmophilia.*—The value of subcutaneous injection of an homologous serum in controlling hæmorrhage in these cases has long been recognized. Highly successful results following transfusion have recently been recorded by various American writers, who maintain that the introduction of blood from healthy donors is almost invariably successful in controlling hæmorrhage in these cases.

(*b*) *Hæmorrhagic Disease of the New-Born.*—The subcutaneous injection of the parental blood has been advocated by various writers. It is suggested that the effects of whole blood transfusion are worthy of further investigation in such cases. From theoretical considerations it would appear to be of primary necessity that the donor should belong to Group IV. in these cases, since it has been stated that the blood of infants does not necessarily fall into the characteristic groups until the earliest months of life have been passed. However, numerous authors have recently affirmed that the maternal blood is invariably compatible. These observations require confirmation and would appear to offer a fruitful field for research.

III.—Pernicious Anæmia, Aplastic Anæmia, Leukæmia.

Variable results following transfusion have been recorded in these conditions. As treatment by transfusion in such conditions is based upon symptomatic rather than ætiological indications, temporary alleviation of symptoms is to be expected rather than a permanently curative effect. It has, however, been claimed that, in pernicious anæmia, transfusions of healthy blood, employed at the right time, have been frequently noted to have the effect of precipitating a blood crisis and initiating a remission of the disease. These questions should be submitted to further investigation before final conclusions can be drawn.

IV.—Acute Infective Diseases.

Further investigation should be undertaken with regard to the possibility of transferring passive immunity in acute infective diseases by transfusion of blood from convalescent patients.

V.—Chronic Sepsis Accompanied by Recurrent Hæmorrhage.

Good results have been recorded in such cases. The introduction of fresh corpuscles has appeared to have had the effect of lessening the liability to the recurrence of hæmorrhages and to have turned the scale in favour of recovery of the patient in critical conditions.

VI.—Summary of Recorded Cases.

The following seven typical cases have been selected from the series; they are recorded in detail, to illustrate the principles and results of treatment:—

CASE I.

Condition.—(*a*) General: Severe hæmorrhage and shock. (*b*) Local: Compound fracture of the right tibia, with severance of the posterior tibial artery. Patient restless and suffering from air hunger. Blood pressure, 70 mm. Hg..

Treatment.—Intravenous injection: sodium bicarb., 4%; glucose, 5%; solution, 600 c.cm.. Condition improved; damaged tissues removed without anæsthetic. Blood pressure, 80 mm. Hg. after twenty minutes; pulse-rate, 154. Warmth and hypodermic injection of morphine, 0.01 grm., given. Forty-five minutes later pulse-rate became 168. Blood pressure again falling. Blood transfusion: 800 c.cm.. Blood pressure rose to 120 mm. Hg.; pulse-rate, 90.

Result.—Conditions improved from now onwards. A set operation was later performed and subsequent progress was satisfactory.

CASE XVII.

Condition.—(*a*) General: Acute traumatic shock. (*b*) Local: Wounds of abdomen, injury to intestines and bladder. Patient observed eight hours after injury. Pulseless, cold, condition very bad.

Treatment.—Blood transfusion, 1,000 c.cm.. Slight improvement was observed, rendering an attempt to operate permissible.

Result.—Patient died on table three-quarters of an hour after the abdominal operation had commenced. It would appear that the acute traumatic shock had been so severe that the vital centres had suffered irreparable damage during the long period which elapsed before surgical aid was available.

CASE XVIII.

Condition.—(*a*) General: Profound shock, abdominal injury. (*b*) Local: Penetrating wound of abdomen. General condition: Very collapsed; pulse-rate, 130; cold and blanched.

Treatment.—Warmth. Blood transfusion, 500 c.cm..

Result.—Pulse became stronger, 120 per minute. After one hour the condition was such that operation was performed. Eight holes in the bowel were sutured; 25 cm. of gut were resected. The patient recovered.

CASE XIX.

Condition.—(*a*) General: Severe hæmorrhage and shock. (*b*) Local: Left lower limb shattered about knee joint. Patient admitted four hours after injury. Was cold and blanched; pulse imperceptible. Heart-rate, 142 per minute.

Treatment.—Réchauffement. Blood transfusion, 750 c.cm.. Operation: Limb amputated under gas-oxygen anæsthesia.

Result.—One hour after operation, pulse-rate, 120; blood pressure, 110 mm. Hg.. Subsequent progress satisfactory.

CASE XXI.

Condition.—(*a*) General: Extreme shock and severe hæmorrhage. (*b*) Local: Shattered right leg. Admitted four hours after injury. Condition very bad. Air hunger, pulseless, cold and apparently moribund. He had received gum infusion, 400 c.cm., one hour previously with little result.

Treatment.—Blood transfusion, 800 c.cm. (citrated blood).

Result.—Condition immediately improved and pulse became perceptible. After thirty minutes: pulse-rate, 128 per minute; blood pressure, 110 mm. Hg.. Patient was evacuated to hospital, where operation was performed. Subsequent progress satisfactory. Reports received five weeks later.

CASE XXXIV.

Condition.—(*a*) General: Shock profound, hæmorrhage severe. (*b*) Local: Both legs shattered below knee. Observed four hours after injury; very collapsed. Radial pulse imperceptible.

Treatment.—Réchauffement. Blood transfusion, 700 c.cm. (citrated blood). Condition improved; pulse now palpable, 136 per minute, very thready; blood pressure, 80 mm. Hg.. Operation one and a half hours later under N_2O and O anæsthesia, the left leg was amputated at the junction of the upper and middle thirds. The right leg was placed on splint. Condition now became very critical. Blood transfusion, 600 c.cm..

Result.—One hour later the condition showed improvement; the pulse-rate was 114 and the blood pressure 98 mm. Hg.. Thirty-six hours later, progressing well.

CASE XLI.

Condition.—(*a*) General: Severe hæmorrhage; collapse. (*b*) Local: Shell wound of the left side of the neck; left common carotid artery severed. Observed 1½ hours after injury. Patient had fainted from loss of blood; the wound was plugged with temporary clot.

Treatment.—Left common carotid artery was ligatured above and below the injury. The foreign body was removed. Gum infusion, 750 c.cm..

Result.—Pulse became stronger (previously imperceptible); rate, 96 per minute. Blood pressure, 120 mm. Hg.. Subsequent recovery.

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Reviews.

THE ENCYCLOPÆDIA MEDICA.

The sixth volume of the "Encyclopædia Medica"[1] continues to maintain the standard set in the preceding numbers. Many of the articles contained will command attention as monographs of great value. Such a publication as this must demand enormous labour, as well as enormous expense for its accomplishment and it is being very well done. In this volume the relative importance and space devoted to the various captions seems to be very successfully balanced, though we all have our own ideas of relative values. Heredity has 25 pages, hermaphroditism 25, hernia 50, hospitals 18, hydatid disease 18, hydrology 18, hysteria 50, ichthyosis 5 (with coloured plate), immunity 39, impetigo 3 (with 2 coloured plates), indigestion 36, infant feeding 35, infection 11, inflammation 24 (with 2 coloured plates), influenza 31, inhalation-pneumonia 6 lines. The largest space is occupied by insanity, with 120 pages, divided sectionally amongst four writers.

To a very large extent the "Encyclopædia Medica" is a production of the Edinburgh School of Medicine. It certainly does the school great credit.

FEDERAL INCOME TAX RETURNS.

The Commissioner of Taxation announces in the *Commonwealth of Australia Gazette* that single persons resident in Australia or Papua in receipt of a gross income of £100 or upwards during the year ended June 30, 1920, and married persons resident in Australia or Papua in receipt of a gross income exceeding £156 during the year, must furnish returns of all such income on the prescribed forms on or before July 31, 1920.

[1] Encyclopædia Medica, Second Edition, under the General Editorship of J. W. Ballantyne, M.D., F.R.C.P.E.. Volume VI.: Heat Fever to Intertrigo; 1920. Edinburgh and London: W. Green & Son, Ltd.; Sydney: Butterworth & Company (Australia), Ltd.; Royal 8vo., pp. 766, illustrated. Price, £1,

The Medical Journal of Australia.

SATURDAY, JULY 17, 1920.

The Army Medical Service of the Future.

After every great war a certain section of the community seeks to expose the shortcomings of those who were in authority and to indicate the defects of the organization of the military services and the failures of administration. No useful purpose is served by sensational disclosures or by personal incriminations, nor is it in the interests of any nation to have lengthy stories published concerning these matters. On the other hand, it is little short of wanton waste if experience bought at great price be unheeded and if methods which proved cumbersome or otherwise defective, be retained. The best time for re-organization is when enthusiasm is warm and when facts are still vividly in the minds of men. We have finished with war for the present. No one can say when Australia will again be compelled to appear in the field. The next war may be even more extensive, more deadly and more brutal than the last. It may transpire that plans laid down will be found quite unsuitable and inapplicable under the conditions of the next war. But even if this proves to be the case, the difficulties and the impediments that will have to be overcome, will be immeasurably greater if no attempt is made at once to profit by recent experience and to build up an organization which is accurately adapted to what we regard to-day as the exigencies of modern warfare. The medical profession has recognized the necessity for a thorough revision of the organization and administration of the Australian Army Medical Corps. The Federal Committee of the British Medical Association in Australia has extracted a promise from the Minister of Defence that he will consult the medical profession before the Army Medical Service is recast. Many proposals have been put forward concerning the methods which would best guarantee an adequate supply of trained medical men for any future emergency. It is usually accepted that efficiency in a military sense is impossible without continuous training in military duties. The men who served in the Australian Imperial Force as officers of the Army Medical Corps, are the first to admit that many of the difficulties and some of the disasters were due primarily to their total lack of previous military experience. While the slow-moving governmental department is considering the machinery for reconstruction, the men who served, can discuss the problems from the point of view of the advanced dressing station, the regimental aid post, the casualty clearing station, the base hospital, the sanitary division, the transport and so on. By comparing notes, by bringing forward incidents from their personal experience, by recalling hitches in the machine and defects that were not completely overcome, the returned men can provide the most valuable suggestions for a reorganized service. Discussions of this kind should take place at the Australasian Medical Congress at Brisbane in August. The Congress is essentially a "post-war" congress and this is the proper place and occasion for contributions on war experiences to be made. An opportunity to participate in the reform will probably not again present itself. In the Section of Naval and Military Medicine and Surgery these all-important subjects of administration can be thrashed out and the results can be forwarded as resolutions to the Minister of Defence. We learn with regret that the Secretary of the Section has received few notifications of papers on these subjects and that a large attendance at the meetings of the Section is not yet assured. It is no doubt not easy for men who have been away from their practices for several years, to free themselves for one or two weeks to attend the Congress, especially as in the majority of instances a very long journey has to be faced. But these difficulties are not formidable and a visit to Brisbane in August will serve as a pleasant holiday, as well as a *réunion* for the men who lived through hard and exciting times in close comradeship with each other on the other side. We appeal to those who served in the Army Medical Corps abroad to make an effort to go to the Congress and to take part in the important discussions on the future of the Army Medical Services. The time is drawing near and it is inadvisable to hesitate for long. They should write to the Local Secretary in the State in which they reside that they propose to join the Congress and indicate their requirements concerning accommodation. They should also write

to Colonel G. P. Dixon, O.B.E., announcing their readiness to read a paper on their experience of a special section of the medical military machine. A successful Section of Naval and Military Medicine and Surgery will insure success to the whole Congress. We need the guidance of the returned men in order that the reorganization of the service may be a wise one.

TRANSFUSION IN SHOCK AND HÆMORRHAGE.

Dr. Holmes à Court's able review of the modern conception of secondary surgical shock and his equally admirable doctrine concerning the manner in which transfusion of blood or intravenous injection of gum acacia solution acts in these conditions, should result in the removal of several misconceptions concerning these important practical matters. While the exact nature of shock is probably not yet understood, many of the physiological changes associated with this condition have been demonstrated since the beginning of the war. It is now possible to form a clear picture of the essential results of shock, even if we are uncertain as to what actually occurs in primary shock and as to the process involved in the transition to the condition of secondary shock. Until we can determine the mechanism of the vasomotor control over the blood vessels and can form a correct idea of the way in which stimulation of nerve endings can disturb the normal vasomotor equilibrium, we shall seek in vain for the true explanation of surgical shock. None of the theories that have elaborated, are acceptable because in none is proof available. The similarity of fainting and surgical shock may be symptomatic, but it is certainly striking. If the mechanism in these two conditions is similar, a psychical element must be taken into account. Fainting may occur without any painful sensory impression. We are consequently faced with a problem which does not admit at present of an adequate explanation. Bayliss, Crile, Cannon, Malcolm and others have exhibited wisdom in endeavouring to trace the essence of shock by studying its manifestations and seeking to distinguish between causes and effects. Of the changes that have been noted, the diminution of the actual amount of blood in circulation is probably the most important. Whether the imprisonment of a considerable quantity of blood in the capillaries is effected by a chemical substance, such as the depressor substance of the posterior lobe of the pituitary gland, or as histamine which is apparently possessed of a similar physiological action, is not yet known. Neither is it possible to suggest how an excess of such a chemical substance would be available in the absence of large injuries to muscles. For the present, therefore, we must be content with the knowledge that in shock and in hæmorrhage the symptoms are largely due to a deficiency in the amount of blood in circulation.

In the treatment of shock or hæmorrhage, it may be necessary to await Nature's efforts to remove the primary cause or the primary effect. Soon, however, symptomatic treatment can be applied with confidence that a remarkable degree of success can be attained. Naturally the chances of recovery depend on the amount of hæmoglobin available for the carriage of oxygen. Provided that the exæmia is not so great that life can no longer be supported, an apparently dying patient can be saved by the very simple expedient of supplying homologous hæmoglobin. In all cases of extreme hæmorrhage and in the majority of cases of extreme shock, the provision of more oxygen carrier is essential. The patient has a limited length of life if left untreated. By transfusing blood, the surgeon can prolong this period and thus give the patient's organism an opportunity of effecting the necessary repair. The recuperative powers may be sufficient to remove the cause of the dilatation of the capillaries and of the contraction of the arterioles and arteries. They may suffice to bring into the circulating blood fresh supplies of erythrocytes and to restore the original volume of blood. When the patient's life is in danger in consequence of the failure of the heart because of the small quantity of blood present in the ventricle to be pumped into the systemic circulation, injection of a solution of gum acacia of the same osmotic pressure and viscosity as the blood, may serve for the moment. The supply of hæmoglobin may then be postponed for a short time. In less severe cases the restoration of the normal volume of blood may give the recuperative power of the body time to overcome the threatening dissolution.

Dr. Holmes à Court has shown quite definitely that it is quite unreasonable to endeavour to restore the

volume of blood to its proper level by the introduction into the blood vessels of a fluid of lower viscosity than blood. Such a fluid will pass rapidly into the tissues without leaving any crystalloid material in the blood. Nature has already made an effort to arrest the process by concentrating the corpuscular elements in the residual blood. The injection of physiological saline solution or of any solution of an inorganic salt will result in the reduction of the viscosity of the blood and the consequent reduction of the volume of fluid in the vessels. It is therefore necessary to recognize that in all cases of shock and of hæmorrhage of sufficient severity to endanger life immediately, the proper treatment is transfusion of blood. In the absence of a suitable donor gum acacia solution may be used temporarily. In less urgent cases, gum acacia may suffice. Transfusion will not be required at all frequently in civil practice, but every surgeon should be prepared to have recourse to this treatment when the ordinary means of resuscitation are unlikely to prove successful.

THE PATHOGENESIS OF PELLAGRA.

A century and a half ago a Spanish practitioner, Cazal, described a peculiar affection of the skin, associated with gastro-intestinal symptoms and gave this condition the name *Mal de la Rosa*. Nine years later an Italian named Frapoli came across the same condition and called it pellagra, meaning rough skin. It is supposed that the disease first appeared in Europe at the time of the introduction of the cultivation of corn, about the year 1720. It was noted at an early date that pellagra occurred chiefly among the poorer people in rural districts and that the manifestations recurred in the mild seasons of the year. From the historical accounts of the disease, it would seem as if it had gradually gained a footing in the various agricultural countries of Europe during the eighteenth century, appearing first in one place, then in other and later disappearing from one or other situation. Whether the disease actually died out in some of the countries or was not recognized by the medical practitioners is difficult to ascertain. It is not improbable that local economic conditions acted to some extent as a determining factor in regard to its prevalence. We have no information concerning the presence of pellagra in the East and in America during the greater part of the nineteenth century. Sandwith recognized it in Egypt in 1893, while the first cases were recorded in South America in 1908 and in Nyassaland two years later. It now exists in the United States, in Turkey, in Egypt, in South America, as well as in England, Scotland, Italy, Rumania and several of the Balkan states. But few cases have been reported in Australia. The uncommon occurrence of a disease may not be used as an excuse for a lack of interest in the process, nor for an inability to recognize it. There is no guarantee that pellagra will not appear suddenly in the Commonwealth. If this should occur, its prompt recognition would be of paramount importance.

Pellagra is classed among the deficiency diseases. It has been studied closely during the later stages of the war and since, but hitherto no accurate knowledge of the deficient food factor has been garnered. Dr. A. Douglas Bigland has been able to devote much attention to the manifestations of the disease and to many factors of ætiological significance among Ottoman prisoners. As a result of his observations and of the findings of others, he has arrived at the conclusion that it is frequently associated with diets deficient in proteins, but that it also occurs when the patient has access to an ample supply of protein food.[1] He suggests that pellagra may be a syndrome of three grades, each of which may have a different pathology. The first grade is illustrated by the case of a boy who was cured of unmistakable pellagra by the addition of one egg each day to his diet. His second grade is seen in the patient who can be cured only by relentless overfeeding. In the third grade the metabolic balance is lost completely and no regulation of the diet suffices to restore health. He refers to some interesting experiments carried out by Goldberger, who induced pellagra in six out of eleven convicts by feeding them with diets deficient in fresh animal protein. Goldberger further attacked the problem in another way. He introduced into the stable dietary of the inmates of an orphanage where pellagra was endemic, a considerable supply of fresh protein food. The disease disappeared. Külz contracted the disease in Rumania. The bread consumed by him contained 20% maize. He recovered completely when invalided home, but every time he returned to the German army bread containing maize, the pellagrous symptoms recurred. Wilson found that pellagra occurred when the amount of protein taken was less than 40 grammes in twenty-four hours. Dr. Bigland found that the majority of the Ottoman prisoners had been living on a ration containing less protein than this quantity. But he also found patients with all the signs and symptoms of pellagra, whose diet was not deficient. He recognized that these cases are the exception and consequently he sought an explanation which would be consistent with the deficiency theory. He postulated a toxic substance, possibly derived from a virus, which acts on the proteins in the gastro-intestinal tract and prevents the absorption of protein. Such a toxin would, according to this hypothesis, lead to protein starvation even if an ample supply of protein were provided. He places it in the gastro-intestinal canal, because the first symptoms to appear are gastro-intestinal and because indicanuria is a constant sign. Moreover, unsplit proteins are found in the stools. The reason given for assuming that the toxin is derived from a virus is that the nervous changes are degenerative and not inflammatory. But while he suggests that a virus participates in the pathogenesis of the disease, he admits that it is not transmitted from person to

[1] *The Lancet*, May 1, 1920.

person, like the virus of an infectious process. It is not clear from the account whether Dr. Bigland holds that the toxic substance is present in every case or only in those which are not dependent on a protein deficiency of the diet. Until the virus or the toxic substance can be demonstrated, this view cannot be accepted as the true explanation of the nature of pellagra. It may, however, serve as a useful working hypothesis.

VARIOLA IN OCCUPIED GERMANY.

In December, 1918, the British army of occupation marched through the Ardennes, across the Eifel, toward the Rhine. The route crossed the district of Malmedy, lately in German possession, but now transferred to Belgium. One of the principal towns of Malmedy is St. Vith. The district is mountainous and bleak and in winter the snow lies on the ground, more or less isolating the villages from one another. The population in this district is poor and scattered and has little intercourse with the outer world. After the German retreat the conditions in this area were unfavourable in the extreme. Formerly the inhabitants had lived quietly on the land, demanding few luxuries or comforts. Work had brought its own content and while riches were practically unknown, everyone had enough food and warmth in their homes. For generations these conditions had obtained and no one questioned the wisdom of permitting the same state of affairs to continue indefinitely. Happiness reigned, born of simplicity and an inherited desire to work. The total population at the time of the armistice was between 30,000 and 40,000. According to an account of an epidemic of small-pox which occurred in December, 1918, published by Captain G. G. Johnstone, R.A.M.C.,[1] there were two local medical practitioners and one *Kreisarzt* or medical officer of health for the *Kreis* or district of Malmedy. The means of communication at this time were extremely bad. Under the provisions of the armistice the civilian population was not allowed to use the telephone or the telegraph. Motor cars were forbidden. The train service had been partially interrupted. Civilians were not allowed to go out after dark. Furthermore, there was no petrol in the district, while the absence of tyres for the motor cars, the limited supplies of drugs and disinfectants and the food difficulties must have added considerably to the difficulties of the civilian practitioners in endeavouring to cope with infections. Captain Johnstone relates that there was no isolation hospital. The local hospital at St. Vith was situated just outside the town in the same grounds as a small convent, from which the Sisters were supplied to nurse the patients, a large orphanage and school of domestic economy, a chapel and an almshouse for aged people. It will be remembered that the law in Germany has required everyone to be vaccinated at least twice, once in infancy and once at the age of 14. Males were vaccinated on a third occasion on joining the conscript army. It may be assumed that the civilian practitioners in the district had not previously seen a case of variola.

Shortly before the arrival of the British army a Polish soldier who had served with the Germans, was admitted among very many other patients to the hospital at St. Vith. Captain Johnstone states that there must have been a great rush of work about this time. The affection from which this man was suffering, was not recognized and he was hurried on to an ambulance train that was leaving for the Rhine at the time. He had been in the same ward as a man with pulmonary tuberculosis. The latter was visited by a cousin, a midwife practising in the town. The midwife was taken ill on November 30, 1918, a day or two after she had attended two women during their confinements. On December 15, 1918, her husband was admitted to the hospital and was found to be suffering from variola. Later the midwife's mother was admitted with the same infection. When the British troops marched to the town, the senior practitioner reported the presence of variola. A car was promptly dispatched to Cologne for a supply of lymph and the town was put out of bounds as a billeting area. At this time there were four cases in the town. On December 6, 1918, the lymph arrived and all the people in the hospital and as many as possible in the town were immediately vaccinated. The patients were isolated at first in a portion of the almshouse The old people and the Sisters were thus exposed to the infection. Of the latter no less than twenty were attacked, despite the previous vaccination and the re-vaccination when lymph became available. Of them two died. Many of the old people were not vaccinated. It was held that they would not be as susceptible as the younger members of the community and consequently no compulsion was used in their case. Eight old people became attacked, including five who had not been vaccinated. The only old patient who died, was a woman who refused to submit to vaccination. In all thirty persons were involved in the outbreak. One or two were living at a considerable distance from St. Vith, but they had been in contact with one or other patient in the hospital. One man developed the disease in Cologne. He had left the district without the knowledge or consent of the authorities and had gone to Cologne, a distance of about 112 kilometres. No spread of infection, however, took place from this patient. Eventually the British military authorities assisted the local medical practitioners and enabled them to cope with the position. The story is of considerable significance. From an administrative point of view, the civilian doctors were practically paralysed in their efforts to deal with the infection. Vaccination was carried out late and under difficulties. The facilities for transport of patients and the conditions of isolation were most primitive. Moreover, it is probable that the community was underfed and that its resistance toward infection was greatly reduced. Notwithstanding these unfavourable circumstances, the outbreak remained limited and was soon controlled. It must also be remembered that the type of infection introduced by the Polish soldier was severe. The lesson should not be left unheeded in Australia.

[1] *The Lancet*, May 22, 1920.

SEGMENTAL HYPERALGESIA IN VISCERAL LESIONS.

The presence of areas of cutaneous hyperalgesia in relation to visceral disease has long been recognized. The classical works of Thorburn, Ross, Head and Mackenzie in reference to the subject are well known. The value of the investigation of cutaneous hyperalgesia in patients suffering from visceral disease has gradually become more fully appreciated as a method of clinical diagnosis. It cannot be said, however, that a full and complete understanding of the subject has yet been reached. The viscera themselves are insensitive to pain; pain in visceral disease is felt not in the organ itself, but in the distribution of the corresponding somatic afferent nerves. In the case of visceral inflammation, impulses pass up the afferent splanchnic nerves to induce a state of hyperexcitability throughout the spinal segment to which they belong. There results an increased sensitivity of the afferent somatic nerves, clinically manifested by hyperalgesia in the corresponding cutaneous field.

If, therefore, the nerve supply of a viscus be known, it should be possible to determine the location of a morbid process by delimiting the area of cutaneous hyperalgesia. In a recently published contribution to this subject Dr. Carmalt Jones[1] records observations made upon 1,040 patients, including 120 men in apparently normal health, who were used as controls. From the point of view of clinical diagnosis it is important to ascertain how far segmental hyperalgesia is to be regarded as pathognomonic of a lesion in a given area. It is necessary to determine whether hyperalgesia is constant for a given lesion and conversely whether or not it may occur in the absence of organic visceral disease. The evidence afforded by the series of observations to which reference is made, leads to the conclusion that hyperalgesia is not universally present in visceral disease. Individuals vary greatly in the readiness with which the phenomenon is exhibited. The results obtained in the primary investigation of cutaneous sensibility are of more value than subsequent observations because the effect of suggestion on the patient can be excluded from the original examination.

In a group of 250 consecutive cases in which special care was taken to include all negative findings, positive results were obtained in 72%. In the examination of a group of 120 men apparently healthy, it was recorded that rather more than 8% showed demonstrable hyperalgesia without any recognizable symptoms of visceral disease. The investigation of cutaneous hyperalgesia should form part of the routine clinical examination of patients. The information obtained in obscure cases of abdominal disease may frequently be of great value. For instance, should doubt arise as to whether the symptoms of a patient are due to a perforated duodenal ulcer or to an acute appendicitis, hyperalgesia of ninth and tenth dorsal segments would indicate the duodenum as the probable source of the disturbance, whereas the involvement of tenth dorsal and fourth and fifth sacral segments would point to the appendix.

The presence of segmental hyperalgesia, however, cannot be regarded as a short cut to the diagnosis of visceral disease. The examination of this phenomenon is frequently a distinct adjuvant to diagnosis, often giving an early clue to incipient lesions, occasionally becoming a determining factor in differential diagnosis.

[1] *The Quarterly Journal of Medicine*, April, 1920.

THE SIGNIFICANCE OF YELLOW CEREBRO-SPINAL FLUID.

Yellow colouration or xanthochromia of the cerebro-spinal fluid is not a common clinical condition. The occurrence of this sign has been described in the literature as part of a syndrome known as the syndrome of Froin, the characteristic features of which are (1) spinal fluid which coagulates at once or on standing, (2) a marked increase in cells and albumin, (3) yellow colouration. The colouration is regarded as due to the presence of bile pigments, chiefly bilirubin, and the increased coagulability to an increase in fibrin. In an analysis of 5,801 cases from the meningitis division of the Health Department of New York, in which the cerebro-spinal fluid was examined, reported by Dr. C. H. Nammack,[1] 96 cases, or 1.6%, are noted as exhibiting yellow colouration. Of these 96 cases, 40 were tubercular meningitis, 13 were poliomyelitis, four were cerebral and meningeal hæmorrhage, one was a tumour of the spinal cord, one was pachy-meningitis and one was cerebro-spinal meningitis. Other writers have pointed out that this appearance is frequently noted in the cerebro-spinal fluid of patients suffering from tubercular meningitis.

It is a matter of common experience that cases of head injury or cerebral hæmorrhage in which there is gross extravasation of blood into the substance of the brain or into the meningeal spaces, are wont to exhibit this phenomenon. In conditions of acute or subacute illness, the presence of yellow cerebro-spinal fluid should be regarded as strongly suggestive of the possibility of tubercular meningitis or poliomyelitis.

[1] *Amer. Journ. of the Med. Sciences*, April, 1920.

PROPOSAL TO MODIFY THE CONSTITUTION OF THE BRITISH MEDICAL ASSOCIATION.

Members of the Australian Branches of the British Medithe Association are strongly advised to read the section on Organization of the Annual Report of the Council of the British Medical Association and the opinion of counsel on the proposed changes in the constitution of the Association. The Report has been published in the Supplement of the *British Medical Journal* of April 24, 1920, and the passages referred to appear on pages 108 to 111, 126 and 139-140. The members should be prepared to read the report of the proceedings of the Representative Meeting which took place at Cambridge on June 25, 1920. The report will probably appear in the *British Medical Journal* of July 3, 1920. Copies of this issue should arrive in Australia early in August.

VARIOLA IN NEW ZEALAND.

The Minister for Trade and Customs has recommended that official cognizance should be taken of the fact that small-pox is prevalent in New Zealand. A proclamation has therefore been published in the *Commonwealth Gazette*, declaring the Dominion of New Zealand a place infected with small-pox or a place from or through which small-pox may be brought or carried to Australia.

We regret to record the death of Dr. Victor Evelyn Collins, which took place at Cairns on July 7, 1920.

Abstracts from Current Medical Literature.

SURGERY.

(17) Surgical Treatment of Exophthalmic Goitre.

G. W. Crile (*Surg., Gynec. and Obstet.*, January, 1920) reviews his personal experience in 2,250 thyroidectomies, 1,169 of which were for exophthalmic goitre. In the last 331 thyroidectomies the mortality was 0.6%. Nitrous oxide and oxygen were used in conjunction with local anæsthesia. Other important factors in his success were the multiple-stage operation and the exclusion of psychical shock by bringing the operation to the patient instead of taking the patient to the operation. The anæsthetic is given in bed and either the operation is performed there or the patient is carried to the theatre anæsthetized. Ligation of one vessel, then of a second vessel, partial lobectomy and complete lobectomy are the separate stages in a serious case. If during operation the pulse rate becomes too high, the operation is interrupted, the wound dressed with 1-1,000 flavine and the work completed in a day or two. Psychic control of the patient is exercised by the surgeon, resident medical officer, anæsthetist and nurse—"an anociated regimen." If after operation there is hyperthyroidism, the patient is packed in ice.

(18) Surgery of the Brain.

In operative work on the brain L. B. Rawling (*Clin. Journ.*, January, 1920) prefers gas and oxygen to other general anæsthetics, but uses local anæsthesia with 2% novocaine and adrenalin wherever possible. Half an hour before the operation the patient is given a hypodermic injection of morphine, atropine and hyoscine and this is repeated a quarter of an hour later, the dose of morphine, however, being smaller. The patient is conscious and can answer questions, bleeding is more under control and there is less post-operative vomiting. He prefers the hand trephine to electric burrs, but the cutting edge should be sharp, the pin project slightly beyond the cutting edge and the handle should be heavy and suited to the grasp of the hand. With Cushing, he believes in the scalp tourniquet to prevent blood loss from the scalp. Ordinary artery forceps are of little use, but the T-shaped forceps are valuable. If there is bleeding from the *dura mater*, an artery should be underrun with a stitch, a venous sinus should be exposed freely and the tear covered with a muscle or fascia graft held in position for three minutes. A sinus should be plugged only when all other methods fail.

(19) Tuberculosis of the Appendix.

Tuberculosis of the appendix, as Margaret Warwick points out (*Annals. of Surg.*, February, 1920), may so closely resemble clinically ordinary acute appendicitis or malignant disease that microscopical examination is absolutely necessary for correct diagnosis. Tuberculosis of the appendix most commonly affects young adults and it may be primary or secondary to tuberculosis elsewhere. The primary form is so rare that the possibility of its existence is frequently denied, but autopsy in some cases has failed to reveal foci elsewhere. The secondary form is frequently associated with tuberculosis of the intestines or the Fallopian tubes. In these cases it may be due to local spread of the disease, but it is also disseminated by the blood and lymph streams and by infection from the contents of the bowel. Three types are distinguished—the miliary, which is merely an incident in the general attack; the hyperplastic, which is rare and characterized by an intact mucosa and marked thickening of the walls; and the ulcerative, which, though common, is at times discovered only by means of the microscope. The mucous membrane of this type is extensively ulcerated, but the serosa may be normal. This type clinically resembles ordinary acute appendicitis, while the hyperplastic form may be mistaken for a neoplasm.

(20) Empyema.

A. V. Moschcowitz (*Surg., Gynec. and Obstet.*, January, 1920) believes that empyema in the majority of cases results from rupture of a small subpleural pulmonary abscess. He divides the treatment according to the three stages: (1) In the formative stage of serous or sero-purulent exudate, aspiration is indicated and thoracotomy contra-indicated. (2) In the acute stage, where pus has formed and adhesions anchor the lung to the parietes, the encapsuled abscess is evacuated by thoracotomy and the Carrel-Dakin technique applied. (3) In the chronic stage of the lung continued use of Carrel-Dakin method is not effective; the condition may be due to unfavourably placed drainage openings, to necrotic ribs, retained foreign bodies, pulmonary fistulæ, etc.. There are three ways in which the ordinary empyema heals. The classical method is that in which the pleural cavity becomes obliterated by the expanded lung. It may also heal by the absorption of a sterile exudate or by absorption in a closed pneumothorax. Chronic empyema should become rare if proper methods for treating acute empyema were used.

(21) Cysts of Thyreo-Glossal Tract.

Among 86,000 patients examined at the Mayo Clinic, W. E. Sistrunk discovered only 31 thyreo-glossal cysts (*Annals. of Surg.*, February, 1920). The diagnosis is made by finding a cystic tumour in the mid-line of the neck near the hyoid bone or the thyreoid cartilage. The duct running from the cyst to the hyoid bone can usually be felt. If the cyst is opened and drained, a sinus will persist, discharging the fluid secreted by the epithelial lining of the tract. To be successful the operation must remove the tract from the cyst to the *foramen caecum*. As far as the hyoid bone the tract is easily removed, but beyond this it is friable, small and difficult to excise. Sistrunk believes in "coring it out," removing the tract with 3 mm. of all the tissues surrounding. The line of the tract is upwards and backwards in the middle line at an angle of 45° from the upper surface of the hyoid bone.

(22) Malunited Fractures of the Hip.

M. S. Henderson (*Surg., Gynec. and Obstet.*, February, 1920) finds that the most common cause of non-union in fractures of the neck of the femur is the failure to recognize the condition at the time of injury. Faulty treatment is another factor. An impacted fracture must be kept at rest till united. He operated on 26 out of 110 cases that came under his care; the remaining 94 were dismissed without any attempt at relief being made. Of the 26 patients operated on, none died. Nails and screws were used in eight cases, bone in 18. Plaster of Paris casts were found to be the best means of maintaining proper position. Ten of the 26 operations were successful; 8 were known to be failures and 7 patients could not be traced. The fibula supplies the best bone for transplantation and is not missed, provided it be taken more than 10 cm. above the external malleolus.

(23) Pain in Appendicitis.

Sherren (*Clinical Journ.*, November, 1919) calls attention to the fact that pain in the right iliac fossa is not the most important symptom of appendicitis. In acute appendicitis the pain is general or umbilical, awakening the patient at night. There is usually superficial, and nearly always deep, tenderness and there may be vomiting and a rise of temperature. If the first attack results in the appendix becoming buried in adhesions, the pain of the subsequent attacks may then start in the right iliac fossa. Ureteric calculi, pyonephrosis and pleuro-pneumonia are the most common cases to be sent in diagnosed as acute appendicitis, because of the right-sided pain. There are two types of chronic appendicitis, one in which attacks of general abdominal pain are followed by tenderness in the position of the appendix and the other in which the symptoms present simulate gastric or duodenal ulcer.

(24) Fractures of Pelvis.

A study of 69 cases of fractured pelvis is made by Mengel (*Pennsylv. Med. Journ.*, November, 1919). Seventeen of the patients had fracture of the ramus of the pubis, twelve fracture of the ilium, fourteen fracture of the ischium and pubis combined, four fracture of the acetabulum, ten fracture of the ischium itself and four fracture of the sacrum. Forty-six were complicated and 21 terminated fatally. Ruptured bladder was present in 11 cases and ruptured urethra in 13. The practice of waiting for extravasation of urine to occur before making a diagnosis is strongly condemned. Œdema and ecchymosis in the perineum bear the same relation to fracture of pelvis as œdema and ecchymosis of the eyelids to fracture of the base of the skull.

GYNÆCOLOGY AND OBSTETRICS.

(25) Sterility.

B. Solomons (*Surg., Gynec. and Obstet.*, February, 1920) describes sterility as a symptom when there are gross lesions in the pelvis and as a disease where the pelvis and general constitution are normal. For practical purposes a marriage may be considered sterile if pregnancy has not occurred within 18 months. When the patient seeks advice, her history, general and gynæcological, is taken; if coition is unsatisfactory, instruction is given. The condition of the thyroid gland is noted, the breast and abdomen are thoroughly examined. Excessive obesity is of especial moment and dieting and glandular extracts may be ordered. The vulva and vagina are carefully examined and any abnormality treated. Vaginismus is treated by dilatation and the use of cocaine ointment before coition. Through the speculum the reactions of the vaginal and cervical secretions are ascertained. The author states that he has found an acid cervical secretion in but few cases; in these he recommends the use of douche of phosphate of soda (one gramme in a litre and a half) just before coition. In stenosis of the cervix he considers that stem pessaries and tents should not be used. He dilates the cervix with the Kelly-Hegar dilators up to size 10. Dilatation of the cervix is done in all cases. Palliative treatment does not and cannot cure an erosion; a carefully performed Schröder's amputation will do so. Circular amputation is advised when the cervix is hypertrophied. Dudley's posterior division of the cervix is of use in cases of retroverted, anteflexed uteri. He issues a warning in regard to the indiscriminate use of the curette in cases of sterility and reserves this form of treatment when profuse and frequent hæmorrhages are present. Myomectomy is performed whenever possible and in some cases part of the uterus may be removed. He states that there is no risk of rupture of the scar in subsequent pregnancies. Displacements of the uterus rank with tubal inflammation as a most common cause. Pessary treatment should not be employed for longer than three months. He opens the abdomen in order to inspect the tubes and ovaries in all cases and does a modified Gilliam operation, bringing the ligament out through the internal ring. If the ligament is weak, ventral suspension is performed. Salpingitis may be taken as the only pathological condition encountered in the tubes. If a tube is to be saved, it is blown up by means of a sterilized ear syringe as a routine procedure. All limbus are cut and oversewn with fine catgut. If the ostium is closed, it is opened and a smooth director is passed along to explore its patency. Eight strands of No. 4 catgut are then passes into the lumen and left there. Sometimes he resects a diseased portion of the tube and does an end-to-end anastomosis. Small cysts of the ovary are extremely common and they should be removed. If nothing abnormal is found on examination and especially in those cases with diminished menstrual flow, ovarian or *corpus luteum* extract given for a year may have the desired effect. If a cure cannot be accomplished by other means, direct insemination should be tried. The time of election is from three to five days after menstruation. At times there is a definite physiological factor in conception, at present unexplained, which prevents conception.

(26) Post-Partum Management.

E. Cary (*Illinois Med. Journ.*, May, 1920) states that many prehistoric customs of midwifery are still in vogue, such as the use of castor oil *post-partum*, the dorsal position and the tight binder. After delivery the birth canal should be restored to as near normal as possible. He prefers a non-absorbable suture and emphasizes the importance of clearly demonstrating the directions and extent of the injury. After attending to the perineum, any prolapsed bowel is pushed back through the *sphincter ani* and held in position by a conical-shaped pledget of cotton wool. This tends to prevent any trouble from hæmorrhoids. He is of the opinion that retained membranes should be treated expectantly, as it is impossible to remove them completely and the risk of introducing sepsis is great if the hand is introduced into the uterus. He limits the use of a binder to the first 24 or 48 hours *post-partum*, when it gives support to the relaxed abdominal muscles. With a tight binder and the dorsal position the uterus tends to be pressed backwards into the pelvis and causes pressure on the rectum, with consequent constipation, tension on the utero-sacral and round ligaments and pressure on the ovarian vessels. With the woman on her side and the binder removed, the uterus tends to gravitate out of the pelvis, the fundus falls forward and pressure on the rectum and ovarian vessels is removed. He uses 30 c.cm. of liquid *petrolatum* with orange juice twice daily to open the bowels, if necessary followed by a small soap-suds enema. The infant is put to the breast every four hours. After the third day resistant exercises are instituted, the nurse extending and flexing the limbs whilst the patient resists the movements. This exercise induces a feeling of "well being" and lessens the tendency to constipation. The author considers that the *post-partum* period should be considered as lasting for six or eight weeks and the patient should be under supervision during the whole of the time. He recommends the use of exercises for the abdominal muscles and the assumption of the knee-chest position for ten minutes daily.

(27) Vesico-Vaginal Fistula.

E. G. Judd (*Surg., Gynec. and Obstet.*, May, 1920) reviews the results obtained at the Mayo Clinic between 1908 and 1919, in 78 cases of vesico-vaginal fistula. The cause of this condition now-a-days is more commonly some procedure for the removal of growths of the uterus, as only 39% of these cases followed childbirth. In five cases the fistula followed the use of radium alone. To obtain good results the bladder wall should be dissected well away from the vaginal wall, so that mucous membrane of the fistula can be inverted into the bladder and all dead space between the bladder and vagina obliterated. Several operations were necessary to close the fistula in 24 cases and the author considers that repeated operation is justified in these cases, if the sphincter muscle of the bladder is intact. If the sphincter muscle is divided, numerous attempts should be made to repair it before diverting the urine into the rectum. In 75 cases the fistulous opening was single; in the other three cases there was more than one opening. In these instances a large incision in the vaginal wall included all the openings and converted the operation into a single closure after the openings into the bladder had been separately closed. One of the ureters was involved with the vesical fistula in six cases. The vaginal operation is preferable, if it is possible. All of the suprapubic operations were performed extra-peritoneally. In some cases in which the cervix has been removed and the fistula is high up, it is advisable to open the abdomen and to free the bladder, so that the fistula can be repaired from the vagina. A small curved hæmostat passed through the urethra and into the vagina through the fistula is often of service in bringing the fistulous tract downwards. A catheter is left in the bladder for eight or ten days and the patients should be left quiet for from twelve days to two weeks.

(28) Gangrenous Appendicitis Coincident with Labour.

J. F. Grattan (*Surg., Gynec. and Obstet.*, November, 1919) reports a case of gangrenous appendicitis during labour and states that after searching the records for the last ten years he has been unable to find any other cases. The patient, a primipara, aged 22 years, had a normal pregnancy. At term she had irregular abdominal pains for two days and then symptoms of acute appendicitis set in, simultaneously with labour pains. Several hours later the appendix was removed. It was distended with foul pus and was in the preperforative stage of gangrene. The peritoneum contained slightly turbid fluid. Drainage tubes were brought out through the wound, which was stitched up with several layers of catgut and reinforced by through-and-through double silk worm gut sutures. The mebranes ruptured four hours after the operation and delivery was effected by forceps five hours later. The infant died seven hours after birth after several attacks of apnœa. The mother recovered completely after almost fatal post-operative complications due to cardiac and renal failure of toxic origin.

British Medical Association News.

SCIENTIFIC.

A meeting of the New South Wales Branch was held in the Sydney Hospital on June 11, 1920, Dr. C. Bickerton Blackburn, O.B.E., the President, in the chair.

A large number of members gathered in the out-patients' departments, where the patients presented by members of the staff of the Hospital were available for examination and where Dr. Keith Inglis had exhibited a series of beautiful pathological specimens and Dr. J. G. Edwards a series of excellent skiagrams.

Dr. Inglis's exhibit included some bone specimens macerated by Izzard's method, as well as other examples of first-class museum technique. The object of this demonstration was to stimulate members to submit to the exhibitor pathological specimens for the purpose of enriching the already valuable collection at the hospital. Dr. Inglis was congratulated by those who visited the room in which his exhibition was held, on his excellent display.

After the patients, apparatus and specimens had been thoroughly examined, the members congregated in another room, where each exhibitor gave an account of his exhibit.

Dr. Ralph Worrall dealt with a case of a single young woman, aged 26 years, who had been admitted to the Sydney Hospital on November 12, 1918, suffering from severe pains in the middle line of the abdomen below the umbilicus. The attack of pain had commenced suddenly on the previous day in association with nausea, slight vomiting and general malaise. There was no history of pregnancy nor of a yellow discharge. The patient said that she had accidentally swallowed pins three months previously and that she had had a similar but less severe attack of pain very shortly afterwards. On admission, the patient's temperature was 38.3° C., her pulse-rate 108 and respirations 24. The tongue was dry; the abdomen was not distended, but was very tender and rigid in the lower half. Great pelvic tenderness and fixation of the organs were detected *per vaginam*. The uterus and the appendages were much enlarged. As no improvement took place during the following three days, a vaginal coeliotomy was performed and the adhesions separated. This was followed by a median abdominal section, which disclosed that the pelvic inlet was closed in by coils of small intestine firmly adherent to the enlarged uterus and bladder. Separation of the adhesions gave exit to a considerable quantity of *Bacillus coli communis* pus which was loculated in the vesico-uterine space. The ovaries were apparently normal, although they were adherent. The Fallopian tubes were much enlarged, intensely inflamed and firmly adherent to the enlarged uterus. Total hysterectomy was carried out with removal of both tubes and of the appendix. The appendix was the size of the forefinger, intensely red and firmly adherent to the mass. The pelvis was drained through the open vagina by a narrow gauze strip. While Dr. Worrall was attempting to bring down the omentum, he felt a needle in this structure and removed it. Others were then discovered higher up. The incision was extended upwards, almost as far as the ensiform cartilage. Eight other needles were removed from the gastro-colic and the gastro-hepatic omentum, while two were found protruding in the wall of the third part of the duodenum. Others were doubtfully felt higher up, but the patient's condition precluded a more prolonged search. Except for slight suppuration in the lower angle of the wound, recovery was uneventful.

The tumour of the uterus proved to be a myoma undergoing myxomatous degeneration. Dr. Worrall was inclined to regard the appendix as the primary focus of suppuration. He called attention to the fact that the patient had said that she had accidentally swallowed two or three pins. In reality, she had attempted suicide by swallowing at least nine sewing needles. The wandering of these needles over such a wide area of the abdomen was remarkable, as was also the fact that seven had found their way through the bowel wall, without having inflicted a fatal injury, while two were projecting through the duodenal wall. Dr. Worrall caused much amusement by expounding the conclusion that "the swallowing of needles, while highly dangerous, was not necessarily fatal."

Dr. Thomas Fiaschi dealt with the case of a troublesome sacral decubitus scar treated by excision and plastic repair. The patient was a fisherman, aged 29 years, who was referred to Dr. Fiaschi in October, 1919, by his son. In 1916 the patient had suffered from cerebro-spinal meningitis and had been in bed for ten months. A large and deep bed sore had formed in the sacral region. The bed sore had healed, but the scar had constantly given way and fresh sores had formed. He was unable to bend his vertebral column forward and complained of an unpleasant sensation of being "tied up." He had to relinquish his work owing to the pain and the sensation of drawing in the back, whenever he stooped. There had been a *Bacillus coli communis* infection of the urinary tract, which had been treated. The patient stated that he had had a chancre five years previously. He had been receiving antiluetic treatment. On examination, Dr. Fiaschi noted a scar in the sacral region, deeply sunk and firmly attached to the sacrum. It was of triangular shape with the base upwards and measured 7.5 cm.. In the centre of the scar was an ulcer the size of a sixpence. When the patient stooped the skin above the scar was stretched and the fascia beneath was rendered still more tense. The movement caused pain. The skin surrounding the scar was healthy and was raised 2.5 cm. above the level of the scar. A plastic operation was carried out on October 14, 1919. The scar was dissected from the bone and from the healthy skin and fascia and a large triangular, raw surface was left. This surface was covered by two abundant quadrilateral flaps, one on either side. The flaps were brought together by suturing in the middle line. They contained a layer of adipose tissue, fully 1.25 cm. in thickness. This fatty layer had the object of preventing further adhesions of the skin to the bone. The flaps healed to each other and to the skin quite readily. On November 7, 1919, skin grafting was carried out to cover a triangular raw surface which remained on the outer side of each flap. The grafts were taken from the thigh. After some difficulty the defects were completely covered. The operation was completely successful and the patient was able to resume his occupation without any disability.

Dr. C. E. Corlette exhibited some apparatus and some patients. In the first place, he showed a Schmerz spring clamp for direct extension of the femur. The clamp or hook was made of spring steel and was applied to the condyle of the femur either under local or under general anæsthesia. The skin should be well retracted upwards at the site of insertion. The limb was then placed in a Hodgen's splint and extension applied to the clamp. As much as 18 kilograms had been used at first in the case of limbs that had been neglected. The shortening disappeared and the limb was absolutely comfortable, more comfortable than in any other apparatus. The apparatus was worn for not longer than three weeks. It was then replaced by extension with zinc oxide plaster. A double Balkan frame was used overhead.

Dr. Corlette's second exhibit was a new apparatus for the extension of the leg. He claimed for this apparatus that it provided an improved method of treating Pott's fractures. A very small gimlet was pushed transversely through the calcaneus, while the patient was under an anæsthetic. A piece of wire was bent and looped and at each end shaped to form a hook. The hook was fitted on to the gimlet, one arm on either side of the foot. The portion of wire hooking over the handle end of the gimlet was secured by means of tape, while a cork was fitted to the sharp end. Extension about 2.75 kilograms was applied to one of the wire loops. When used for Pott's fracture, extension was applied to the outer loop, so that the pull was chiefly on the lateral end and produced adduction and over-correction of the deformity. If necessary, a dislocation could be reduced manually before the apparatus was applied. During the third week the leg and foot were put up in plaster. On the following day, when the plaster was firmly set, the extension was released and the gimlet removed. It was not left in longer than three weeks in any case. In the treatment of Pott's fracture the adduction was continued when the limb was put up in plaster.

Dr. Corlette next presented an apparatus for lifting and supporting patients for nursing purposes. The apparatus consisted of a mechanical appliance called the Burr lift, suspended from an overhead Balkan frame. It was a rope and pulley apparatus, giving a mechanical advantage of five to one. By an ingenious arrangement it was automatically locked by the pull of the weight as soon as the rope was released. In this way the weight could not again run down. To lower the weight, the patient or nurse pulled a small trip rope, which unlocked the gear and allowed the weight to descend. As soon as the trip rope was released, the automatic locking came into action. A canvas sling was provided for lifting the patient. The sling was passed beneath the patient's body from side to side. It was then attached to the hook of the lift. The patient could then lift himself by pulling on the main rope. He would remain at any desired level as long as was necessary and could let himself down slowly and deliberately by pulling on the trip rope. The lifting work that formerly necessitated the simultaneous efforts of four nurses, was carried out more effectively in the hospital by the patient himself working the apparatus. The nurses were saved a great deal of muscular strain and the patients stated that the lifting was more comfortable and gave them a greater sense of security than the ordinary method.

Dr. Corlette then showed a Nifong's ambulatory chair modified by the addition of a back to the seat. This chair was chiefly intended for patients who were again learning to walk after having been laid up with fractures in the lower limb. It was safer for a beginner than crutches. The apparatus was popular with patients. Dr. Corlette stated that they could quite easily go up and down stairs with this frame.

Dr. Corlette also exhibited a new adjustable splint designed by a patient.

Among the patients exhibited were two men on whom he had performed his operation for amputation of the foot (see *The Medical Journal of Australia*, June 14, 21 and 28, 1919).

He also showed a patient in whom he had performed rhinoplasty by a new method two years previously. The nasal bones had been brought down to form a new *columna nasi*. A forehead flap containing an osseous plate from the frontal bone had been prepared and the osseous plate had been utilized as a bridge from the top of the new *columna nasi* to the root of the nose. A firm, bony framework had thus been provided for the new nose; this could not sag down.

In the next place, Dr. Corlette exhibited a patient in whom he had cured an irritable ulcer of the malleolus on the right leg and in whom he proposed to treat a similar condition in the left leg. The pathology and treatment of this condition will be the subject of a special article by Dr. Corlette in a subsequent issue.

Dr. Corlette's eighth exhibit was a series of X-ray pictures illustrating a very bad Pott's fracture, both from the lateral aspect and anterior-posteriorly. The next pictures illustrated the limb after reduction and extension with overcorrection of the deformity obtained by means of the gimlet and wire loop method. In the skiagrams taken before the treatment had been applied, it was seen that there was extreme dislocation, wide separation between the tibia and fibula, separation of a flake from the fibula by a vertical split and a vertical transverse fracture of the back of the lower extremity of the tibia separating the posterior lip of the articular portion. The medial malleolus had nearly penetrated the skin. Dr. Corlette pointed out that there must have been extensive rupture of the ligaments. In the second set of pictures it was seen that a perfect anatomical result had been attained. Many surgeons had laid it down that wiring, screwing or plating was imperative in these cases. There was a great difference in risk between these procedures and treatment by a gimlet passing through the calcaneus. There would also be a considerable difference in the length of the period before useful service from the foot could be obtained. He claimed that there would in all probability be a permanent inferiority in the functional and anatomical result.

He showed two skiagrams depicting a fracture of the pelvis involving the acetabulum with recurring dislocation of the hip. The limb had been in the position of abduction on a Hodgen splint with direct extension applied by means of the Schmerz spring clamp. Ten kilograms were used. It was seen from the skiagram that the dislocation had been reduced and that the alignment of the fractured bone was perfect. The position of abduction was well shown.

Dr. Corlette showed a patient who had sought treatment for an epithelioma invading the back of the hand. After the growth had been removed, the hand had been fixed under a portion of skin of the abdomen and kept there while the abdominal flap was becoming attached. The abdominal pedicles of the graft were then severed and the hand released. Thiersch grafts were applied to the bare area on the abdomen. Dr. Corlette anticipated that a great deal of the sub-cutaneous fat contained in the graft would become absorbed in the course of time. The grafting had been a complete success.

Sir Herbert Maitland stated that he wished to present three patients prior to treatment and not to exhibit the results of operative interference. The first patient was an infant, aged seven weeks, with a large cystic tumour of the neck. The diagnosis lay between a cystic hygroma and a blood cyst. Sir Herbert discussed the various points in the diagnosis and also mentioned the difficulties associated with operations performed in cases of blood cyst. We hope to publish a detailed account of this case in a subsequent issue.

Sir Herbert Maitland's second patient was suffering from rhinophyma. The condition was extremely well marked and the deformity was great. Sir Herbert pointed out that rhinophyma was of pathological interest. It was held by some to be the last stage of *acne rosacea*. Langenbeck held that it was a form of *molluscum fibrosum*. There was a popular belief that it was a result of alcohol. This was certainly not the case with his patient and Sir Herbert did not think it was true in any case. Alcoholism was very common; rhinophyma was very rare. Fortunately, the condition was easily remedied by plastic surgery.

Sir Herbert's third patient was a young man who had sustained a sub-astragaloid dislocation of the foot. The accident had occurred 14 weeks before the patient applied to him for treatment. A skiagram of this condition had been published by Dr. J. G. Edwards in *The Medical Journal of Australia* (see issue of June 5, 1920, page 526). He raised the question as to the method of treatment that could be adopted. He had come to the conclusion that unless someone could suggest a better form of treatment, he would be compelled to remove the astragalus. This was by no means an easy task in neglected cases. It would be necessary to make two incisions, the one from the external malleolus to the cuboid bone and the second from the medial malleolus to the cuneiform bone.

In the course of a short discussion Dr. T. Fiaschi stated that he was inclined to regard the tumour of the neck of the infant as a cystic hygroma. He would not advocate immediate operation. In dealing with the rhinophyma case he referred to a patient on whom he had operated some years ago and who eventually obtained an acquiline nose, although before the development of the rhinophyma the nose had been of the no character type. He thought that Sir Herbert was adopting the only available means by excising the astragalus in the dislocation case. Excellent results could be obtained.

Dr. H. Skipton Stacy presented a young woman, aged 24, an actress, who had been shot in the epigastrium with a revolver on August 12, 1919. The bullet had entered just below and to the left of the xiphi-sternum. On admission to the hospital her pulse-rate was 80 and her temperature was subnormal. Several days later both the pulse-rate and the temperature rose. Dr. Stacy therefore opened the upper portion of the abdomen and found some clotted and fluid blood in the vicinity of the liver and a punctured wound of the anterior surface of the liver. The abdominal wound was closed. On the following day the symptoms were less acute. Four days later she was transferred to a private hospital.

Dr. Stacy next saw the patient after an interval of four months. She had been examined by X-rays and she expressed the desire that the bullet should be removed. Dr. J. G. Edwards examined her again and reported that on screen examination in the lateral position the shadow of the bullet could be seen to pulsate in synchronism with the heart beats. It could be seen that the bullet was not em-

bedded in the heart muscle, but was embedded in the posterior wall of the pericardium. The presence of the bullet had become rather an obsession than the actual cause of many physical symptoms. He therefore consented to her urgent request for its removal. He followed the route described by Dr. Scot Skirving. Three incisions were made: the first along the border of the third left costal cartilage, the second over the sixth left costal cartilage and the third, a vertical incision, joining the mesial ends of the first and second and lying slightly to the left of the middle line. The sternum, the third, fourth, fifth and sixth costal cartilages were laid bare and the flap turned outwards. The cartilages were divided close to the sternum. The greater part of the fifth and sixth cartilages were removed. The third and fourth were retracted outwards, with the corresponding intercostal muscles, and the *transversus thoracis* muscle brought into view. This was incised. The internal mammary vessels were tied and divided and the pleura was exposed. The pleural reflection was displaced outwards with blunt gauze dissection. The pericardium was then exposed to view, was picked up with Kocher's forceps and was incised. Some adhesions were found. The adhesions were easily broken down. During the exploration the heart was given spells of repose. According to Starling, the heart could stand much manipulation, if this precaution were taken. The bullet was found in the situation indicated by Dr. Edwards, close to the root of the lung. The pericardium was closed with mattress sutures of catgut and the divided costal cartilages were approximated. No drain was inserted. The heart's action was somewhat irregular at first. The patient made a good recovery and the wound healed by first intention.

Dr. Stacy's second patient was referred to him by Dr. Murray Will with a history of epigastric pain of several months' duration coming on about 30 minutes after meals, anorexia, loss of weight and general weakness. Dr. Stacy opened the abdomen and found a tumour occupying both walls of the stomach and extending to within 2.5 cm. of the pylorus. He proceeded to perform Balfour's operation of partial gastrectomy. He referred to the former practice at the Mayo Clinic of performing Billroth's second operation for carcinoma of the pyloric end of the stomach. This operation consisted in closing off the ends of both the stomach and the duodenum and in uniting the stomach to the jejunum by the retro-colic method. The mortality of this operation performed in 318 cases was 13.2%. About the year 1913 the Polyá method was adopted. In this operation the whole lumen of the stomach was sutured to the jejunum through an opening made in the transverse mesocolon. The mortality among 104 cases was 14.4%. Under certain conditions, especially when extensive resection had to be performed, technical difficulties presented themselves. The chief of these difficulties was the impossibility of bringing the gastric stump with the attached jejunum satisfactorily through and below the opening in the mesocolon. Balfour's operation had been performed on 38 occasions and had yielded a mortality of 5.2%. It was similar to Polyá's operation except that the route was antecolic and not retrocolic. The part of the jejunum used for the anastomosis was about 35 cm. from the *plica duodeno-jejunalis*. The jejunum was carried up in front of the transverse colon and omentum. It was so directed that the proximal end of the loop was approximated to the lesser curvature of the stomach. If the gastric outlet was one-third larger than the size of the opening desired in the jejunum, the intervals between the stitches on the gastric side should be one-third greater than those on the jejunal side. There was apparently no objection to an anastomosis of large size. The advantages claimed for the method were that it could be used in practically every case, that it was simpler, safer and quicker than any other method and that it rendered more extensive resections possible than any other operation.

Dr. H. S. Stacy then introduced a male patient, aged 65 years, who had suffered from pain in the right hypogastric region during the past four years. The pain usually started at 5 p.m. and lasted till midnight. He had lost weight. On admission to the hospital he weighed 63.5 kilograms. There was frequent vomiting, which bore no relation to the taking of meals. There was no hæmatemesis and no melæna. During the summer time he felt perfectly well. Laparotomy was performed on October 20, 1919. The pylorus was found to be the seat of a large malignant mass which was attached to the liver and which was adjudged to be inoperable. A posterior gastro-enterostomy had been performed for the relief of pyloric obstruction. A week after the operation he began to improve and was able to take food without pain and without vomiting. On November 25 he was discharged to a convalescent home. At the time of speaking his weight was 82.3 kilograms, he felt perfectly well, had neither pain nor vomiting nor discomfort and was quite strong. Dr. Stacy recognized that the diagnosis was evidently a mistaken one. The man was suffering from a pyloric ulcer. The gastro-enterostomy had either cured the condition or at least removed all the symptoms. Dr. J. G. Edwards had examined him in February, 1920. He had found that the stomach was larger than normal and that the gastro-enterostomy was functionating well both in the erect and in the recumbent positions. There was an irregularity of the distal part of the pyloric antrum and deformity of the duodenal cap. It was difficult to force food through the pyloric canal. The radiographic appearances were those of a cicatrized ulcer of the pyloro-duodenal segment.

Dr. Stacy's last patient, a boy, aged 19 years, was admitted to the Sydney Hospital on account of pain and swelling in the right knee of two days' duration. His temperature was 38.5° C. and his pulse-rate 108. The affection had started without any apparent cause. As far as the patient knew, there had been no trauma. There was much redness, heat and swelling of the joint. The right tonsil appeared to be unhealthy. An anæsthetic was administered and about 45 c.cm. of pus were aspirated from the joint. Bacteriological examination yielded a pure culture of *Staphylococcus albus*. The joint was washed out with saline solution and a 2% solution of formalin in glycerine was injected. The limb was put up in extension on a Thomas's knee splint. Two days later the process was repeated. A smaller quantity of pus was evacuated. The pain was relieved, the temperature reduced and the frequency of the pulse-rate diminished by the first aspiration. A week later the splint was removed. Hot air massage and passive movements were then applied. Eight days later the patient was walking and had good movement in his joint. The treatment was continued for a short time and recovery was complete.

Dr. Stacy did not claim that this treatment should be adopted in all cases of septic arthritis. The infecting organism in his case was not of high virulence. He believed that for the majority of infections it was the best method and if it were successful the functional results were much better than those obtained after ordinary drainage. He was inclined to the opinion that the success depended on the aspiration and irrigation and that the formalin and glycerine part of the treatment was not essential.

In discussing Dr. Stacy's cases, Sir Herbert Maitland stated that it was often quite impossible to distinguish a benign ulcer of the stomach from malignant disease. In the sigmoid diverticulitis at times simulated malignant disease very closely. He referred to a case of pyloric obstruction. At the operation a huge mass had been discovered. Gastro-enterostomy was performed as a temporary measure and the surgeon expressed his intention to remove the growth later on. The abdomen was again opened four weeks later. The huge growth had disappeared. Not even a scar was to be found.

Dr. T. Fiaschi congratulated Dr. Stacy on the result in his heart case. He hoped, however, that he would not have too many followers. During the war many of the patients with bullets in or near the pericardium were left alone and they lived and remained well. He warned surgeons against interference with the heart unless marked indications for it were present. Dr. Fiaschi referred to the question of Balfour's operation. Several years ago the late Dr. Hinder had performed partial gastrectomy by the long loop method and side-to-end attachment of the jejunum to the gastric section. When he, Dr. Fiaschi, had visited Bier's clinic one of his assistants, a man named Schmiedling, had also performed the same operation. They did not know who had first devised it. Later, this operation had been described as Polyá's operation, but it was an open question whether the priority did not belong to Hinder.

Dr. Howard Bullock showed four patients. The first case he claimed to be unique. The patient, aged 66 years, was suffering from an ulcerated carcinoma of the rectum,

easily palpable through the anus and, at the operation on November 6, 1919, another papillomatous carcinoma was found in the sigmoid colon about 22.5 cm. above the rectal mass. A Miles's operation, the abdomino-perineal excision of the sigmoid and rectum, was performed and completed at one sitting with the assistance of his house surgeon, Mr. Maxwell. Both growths were shown microscopically to be adeno-carcinomata.

Dr. Bullock's second patient was a man, aged 44, who had undergone an operation for intestinal obstruction in November, 1918. The operation was a caecostomy. Four weeks later the descending colon with the splenic flexure and a portion of the iliac colon was removed for a ring stricture of the descending colon. A lateral anastomosis was performed between the ileum and the transverse colon. The patient admitted that he had had chancres 20 years previously and had been treated for one month. No definite evidence of syphilis had been found either at the time or since. There was no history of tuberculosis, dysentery or chronic constipation. Dr. Walton Smith reported that the growth was inflammatory. After the operation the patient complained of pain and six months later a mass was discovered in the left iliac region in the neighbourhood of the anastomosis. This mass disappeared after six injections of arseno-benzol. Dr. Bullock was doubtful whether the mass was inflammatory or whether it was due to an accumulation of fæces.

Dr. Bullock showed a little girl just under two years of age who had been operated on for congenital dislocation of the hip on November 22, 1918. It would have been impossible to have reduced the deformity without dividing the adductor tendons. Lorenz ruptured these tendons by stretching them. Dr. Bullock stated that he had seen the femur fractured in this way. Another method was to make a free incision through the skin and muscles. This left an open wound in a region extremely difficult to keep clean. In his patient Dr. Bullock had performed subcutaneous tenotomy. The trauma was thereby greatly lessened and the result obtained was perfect.

In the last place, Dr. Bullock presented a baby, aged seven months, in whom the ileum had been anastomosed laterally to the transverse colon for an irreducible intussusception of nine hours' duration. The anastomosis effected a short circuiting of the irreducible mass. He thought that this method caused less trauma and less shock and was more quickly performed than resection and lateral anastomosis or resection by Maunsell's method. He had carried out each of these operations on a previous occasion with fatal results.

Sir Herbert Maitland referred to Dr. Bullock's unique case and stated that he had recorded a similar one a few years ago. In this instance there were two growths, quite distinct, about 15 cm. apart. The tumours were adenocarcinomata.

Dr. T. Fiaschi suggested that the stricture of the colon supposed to be inflammatory was gummatous. He referred to cases of cicatricial stricture of the rectum following syphilis.

Dr. Holmes à Court presented a specimen of polycystic degeneration of the kidney. The organ had been removed post-mortem from a married woman, aged 40 years. The clinical history was as follows. At the age of 16 she noticed a lump on the right side of the abdomen. An exploratory operation had been performed and the patient had been told that her right kidney was cystic. No mention appeared to have been made of the condition of the left kidney. The patient came under observation two years before her death. She had previously enjoyed comparatively good health and had suffered little inconvenience except that she had noticed a gradual increase in the size of the abdominal tumours. She had recently lost weight and was becoming progressively weaker. The skin had become very dark in colour. No urinary symptoms were complained of. The urine had a specific gravity of 1,002 to 1,008, was faintly acid and occasionally contained traces of albumin. Its quantity varied greatly. The abdomen contained two large tumours, one in each renal region, apparently cystic in nature. The skin and mucous membranes were deeply pigmented. This sign, together with the cardiac asthenia, suggested the diagnosis of Addison's disease. The size of the tumours varied as a result of the frequent rupture of cysts. The patient was not bed-ridden until two weeks before death, which occurred after an attack of severe diarrhœa and vomiting, followed by increasing cardiac asthenia. The specimens exhibited were two very large polycystic kidneys. There were numerous peritoneal adhesions, apparently due to peritonitis resulting from the rupture of cysts. The supra-renal glands were sclerosed and involved in fibrous tissue. There was very little healthy renal tissue. This was of interest in view of the fact that the small remnants had been able to support life for a considerable period. The condition was usually congenital. The generally accepted hypothesis was that failure occurred in the accurate junction of the masses of nephrogenic tissue (later called the renal vesicles) which ultimately formed the tubules proper, with outgrowths of the Wolffian duct, which formed the pelvis of the kidney. It was held that the cystic part of the kidney took little or no part in the excretion of urine, although it was conceivable that the tubules might still remain in the walls of the cystic sacs.

Dr. C. Bickerton Blackburn, O.B.E., stated that at times there was considerable difficulty in the diagnosis of these cases. He referred to a patient of Sir Alexander MacCormick, who had been taken acutely ill with dropsy of the abdomen. The signs pointed to both an acute appendicitis and an acute infection of the gall-bladder. There were very large masses in the loins, which were regarded as polycystic kidneys. It transpired that the patient had a gangrenous appendix, a gangrenous gall-bladder, enteric fever, polycystic disease of both kidneys and cystitis due to *Bacillus coli communis* and *Bacillus typhosus*. The patient did well. In polycystic disease the urine was of low specific gravity and contained casts. In reply to a question, Dr. Blackburn stated that he believed that these cystic kidneys were always double. At times the condition was associated with multiple cysts of the liver. Dr. Blackburn referred to a patient who had lived for four years after the removal of one of his cystic kidneys.

Dr. Harold Ritchie showed two patients, the one with polycythæmia without splenic enlargement and the other with polycythæmia with splenic enlargement. Both patients were female. The first patient had a high blood pressure and her red blood corpuscles numbered 7,000,000 per cubic millimetre. The condition in the second patient was more characteristic. When she was first seen there was no enlargement of the spleen. The red cells numbered 8,000,000 per c.mm. and later increased to 12,000,000 c.mm.. The blood pressure was about 200 mm. Hg.. The spleen became enlarged, probably in compensation. Dr. Ritchie explained that the increase in the blood pressure was due to the raised viscosity of the blood. This patient had been treated by Röntgen irradiation directed to the long bones. Unfortunately, the spleen had also been irradiated. If the splenic enlargement were a compensatory factor, the spleen should not be subjected to the influence of X-rays. In addition, treatment by venesection had been carried out. This resulted in a temporary improvement and particularly in the alleviation of pain.

Dr. Ritchie's third patient was suffering from a condition manifested by progressive pigmentation of the skin, asthenia and a low blood pressure. He was not prepared to defend the diagnosis of Addison's disease, although he regarded this diagnosis as probably correct.

In the next place, he presented a woman who was suffering from extreme cyanosis, which disappeared when she was placed on a milk diet. The red blood cell count was normal. Examination of the blood revealed the presence of sulphhæmoglobin.

In the last place, Dr. Ritchie asked those present to express an opinion in regard to the best method of treatment of a patient with hydatid of the lung. The hydatid was situated in the hilum of the lung. The patient suffered from neuritis of the ninth intercostal nerve. He suggested that the cyst had eroded a rib or a vertebra. He was undecided to advocate an operation or whether the patient should be allowed to cough up the cyst.

Dr. Blackburn, referring to the case of Addison's disease, agreed with Dr. Ritchie that the condition of the patient was not typical of this disease. The pulse was not rapid and some other of the symptoms usually associated with Addison's disease were absent. He referred to two quite typical cases of Addison's disease which he had met with in patients who had recovered from influenza. Both showed the characteristic rise of 10 mm. in the systolic blood pres-

sure after an injection of adrenalin. In both of them there was pigmentation of the mucous membranes, as well as of the skin. He had recently referred to the changes found in the suprarenal capsules after death from influenza in soldiers in Egypt. There was acute spolling of the capsules with hæmorrhages and in some cases the capsules were converted into mere blood cysts.

Referring to the case of hydatid of the lung, Dr. Blackburn stated that it would be interesting to ascertain how long the patient would remain free of symptoms. He referred to a patient who had given a history of 20 years' duration. The skiagram revealed a typical hydatid cyst near the apex. This patient had sought medical treatment for bronchial asthma, which was probably quite independent of his hydatid disease.

Dr. F. P. Sandes discussed the subject of Addison's disease following influenza. He raised the question whether grafting of the suprarenal bodies might not be of use in these cases. He stated that the literature contained very little reference to the matter.

Charles Ernest Sandford Jackson, Esq., M.B., Ch.B., 1920 (Univ. Melb.), of South Brisbane, has been elected a member of the Queensland Branch.

John Lloyd Digby, Esq., M.B., Ch.M., 1915 (Univ. Sydney), of Adelaide Street, Blayney, and Basil C. Kennedy, Esq., M.B., 1913 (Univ. Sydney), of East Maitland, have been nominated for election as members of the New South Wales Branch.

MEDICAL OFFICERS' RELIEF FUND (FEDERAL).

The Trustees of the Medical Officers' Relief Fund acknowledge with thanks the receipt of the following donations and promises:—

(Eighteenth List.)

Western Australia.

	£	s.	d.
Dr. T. Ambrose	50	0	0
Dr. F. A. Hadley	26	5	0
Dr. W. P. Birmingham	25	0	0
Dr. W. H. Rigby	15	15	0
Dr. C. H. Hill	10	0	0
Dr. D. P. Clement	10	0	0
Dr. Toyajiro Tsukano	7	0	0
Dr. W. H. Nelson	5	5	0
Dr. E. C. Dean	5	0	0
Dr. A. T. White	3	3	0
Dr. T. C. Boyd	2	2	0

South Australia.

Dr. Ben Poulton	50	0	0

Queensland.

Dr. R. A. MacLennan	30	0	0
Dr. N. W. Markwell	5	5	0

Tasmania.

Dr. L. Grey Thompson	20	0	0

Total to July 13, 1920, £12,024 2s. 10d..

Congress Notes.

The date of the Australasian Medical Congress is August 23-28, 1920.

The official address of the Congress is: The Honorary Secretary, 11th Session, Australasian Medical Congress, B.M.A. Building, Adelaide Street, Brisbane.

The following are the Local Secretaries in the several States:—

New South Wales: **Dr. F. Brown Craig, Macquarie Street, Sydney.**

***Victoria*: Dr. A. Leo Kenny, Collins Street, Melbourne.**

***South Australia*: Dr. F. S. Hone, North Terrace, Adelaide.**

***Western Australia*: Dr. W. Trethowan, 267 St. George's Terrace, Perth.**

***Tasmania*: Dr. E. Brettingham Moore, Macquarie Street, Hobart.**

***New Zealand*: Dr. C. E. A. Coldicutt, 82 Simonds Street, Auckland.**

***Queensland*: The Honorary General Secretary and the Coadjutor Secretary, c/o. Queensland Branch, British Medical Association, Adelaide Street, Brisbane.**

The following is a list of the Honorary Secretaries of the Sections:—

(i.) ***Medicine*: Dr. Andrew Stewart, Wickham Terrace, Brisbane.**

(ii.) ***Surgery*: Dr. Donald A. Cameron, Wickham Terrace, Brisbane.**

(iii.) ***Obstetrics and Gynæcology*: Dr. Lillian V. Cooper, George Street, Brisbane.**

(iv.) ***Pathology and Bacteriology*: (In place of Dr. A. W. Dean) D. J. V. Duhig, Wickham Terrace, Brisbane, and Dr. A. Breinl, Institute of Tropical Medicine, Townsville.**

(v.) ***Public Health*: Dr. J. S. C. Elkington, Federal Quarantine Department, Brisbane.**

(vi.) ***Ophthalmology*: Dr. J. Lockhart Gibson, Wickham Terrace, Brisbane.**

(vii.) ***Otology, Rhinology and Laryngology*: Dr. W. N. Robertson, Wickham Terrace, Brisbane.**

(viii.) ***Diseases of Children*: Dr. A. Jefferis Turner, Wickham Terrace, Brisbane.**

(ix.) ***Naval and Military Medicine and Surgery*: Dr. G. P. Dixon, C.B.E., Wickham Terrace, Brisbane.**

(x.) ***Neurology and Psychological Medicine*: Dr. T. H. R. Mathewson, Brunswick Street, New Farm, Brisbane, and Dr. J. R. Nicoll, Hospital for Insane, Toowoomba.**

(xi.) ***Dermatology and Radiology*: Dr. V. McDowall, Preston House, Queen Street, Brisbane.**

Section of Dermatology, Radiology and Medical Electricity.

The Honorary Secretary of the Section of Dermatology, Radiology and Medical Electricity announces that the following subjects have been selected for discussions and papers:—

(i.) The Organization and Administration of Venereal Diseases Clinics.

(ii.) The Complement Fixation Test in Gonorrhœa.

(iii.) Vascular Nævi and Their Treatment.

(iv.) Epidermato-Mycosis in Mice and Men.

(v.) Cross-Fire Radium X-ray Therapy in the Treatment of Malignant Disease.

(vi.) Radiography of the Alimentary Tract.

Section of Public Health and State Medicine.

The Honorary Secretary of the Section of Public Health and State Medicine announces that papers will be read on the following subjects:—

(i.) Hookworm in Australia.

(ii.) Sprue in North Queensland.

(iii.) Parasites of the Human Intestine in North Queensland.

(iv.) A Statistical Survey of Causes of Death in Tropical Queensland.

(v.) The Life Insurance Aspect of Residents in Tropical Australia.

(vi.) The Thermotaxis of the Human Body in North Queensland.

(vii.) The Mental and Physical Reactions of Queensland Women Students.

(viii.) The Control of Mosquito Infestation in City Areas.

Travelling Arrangements.

The following notice is issued for the benefit of members travelling from Victoria to the Congress:—

The first class single fare from Melbourne to Brisbane for a member of Congress and his wife, accompanying him, is £5 for each person. To obtain this reduced fare, each person must present at the booking office in Melbourne two vouchers, to be obtained from the Congress Secretary in Victoria, 13 Collins Street, Melbourne, not later than Saturday, August 14, 1920. The member can leave Melbourne on Tuesday (August 17), Wednesday (August 18), or Thursday (August 19). The journey may be broken for one night only in Sydney on both the forward and the return journey. No return tickets are issued. The tickets may be purchased and sleeping berths reserved for the through journey to Brisbane fourteen days before the date of the commencement of the journey. To secure the concession

for the return journey, the return voucher, previously stamped at the Melbourne booking office, must be presented at Brisbane. The return journey must be begun not later than September 23, 1920. Members residing in country towns in Victoria can obtain from the Congress Secretary for Victoria a voucher entitling the holder to purchase a return ticket from the country town to Melbourne at holiday excursion rates. A separate voucher is required for the member's wife. Country members will further have to secure the vouchers for the journey from Melbourne to Brisbane. These vouchers will be issued not later than August 14, 1920.

Members who live on the North Eastern Line in Victoria must make their applications for the necessary vouchers for tickets from places on this line to Brisbane at an early date. Special notice has to be issued by the railway officials at Spencer Street to the station masters at the stations on this line.

No shipping concessions can be obtained.

The Australian United Steam Navigation Company's *Wodonga* leaves Melbourne on Saturday, August 14, 1920, arrives at Sydney on August 16, 1920, leaves on the following day and arrives at Brisbane on Thursday, August 19, 1920.

The Howard Smith Proprietary, Limited, *Bombala* leaves Melbourne on Wednesday, August 18, 1920, arrives at Sydney on August 20, leaves on the following day and arrives at Brisbane in the morning of August 23, 1920.

The first class single fare from Melbourne to Brisbane is £7 10s.. No return tickets are issued.

We are informed that the dates, fares and ships sailing are subject to variation. Members who wish to travel by sea, are urged to book early.

Pathological Specimens.

Professor D. A. Welsh and Dr. Keith Inglis desire to invite members of Congress who are passing through Sydney, to visit the Medical School at the University of Sydney, to inspect the collection of war specimens.

THE WELCOME OF HIS ROYAL HIGHNESS THE PRINCE OF WALES IN SYDNEY.

The President of the New South Wales Branch of the British Medical Association has received the following letter of thanks from the Lord Mayor of Sydney:—

Dear Sir: At the last meeting of the Executive Committee, appreciative references were made to the splendid response which was made by the business people in the city, in combining to make an effective display on the occasion of the recent visit of His Royal Highness the Prince of Wales and it was the unanimous wish of the Committee that I should convey to you and, through you, to the members of your Association, the appreciation and thanks of the Executive Committee not only for their participation in the decoration, but also for the splendid manner in which they responded to the appeal for funds to enable the whole of the route of the Royal progress to be suitably and effectively decorated.

Yours faithfully,
W. P. FITZGERALD,
Lord Mayor.

Chairman, Citizen's Decoration and Illumination Committee.
Lord Mayor's Room,
Town Hall, Sydney,
July 1, 1920.

The Honorary Treasurer of the New South Wales Branch announces that he has received 322 subscriptions of a guinea each and four of half a guinea each, making a total of £340 4s. towards the erection of the arch of welcome in College Street. He points out that this amount is £159 16s. short of the amount charged for the arch. It is hoped that those who have not yet contributed, will do so now. Any deficiency that may result, will have to be paid out of the pockets of the members of the Council.

We have been asked by the Council of the New South Wales Branch to announce to the members of that Branch that copies of a report by Dr. Margaret Harper on the work of the Royal New Zealand Society for the Health of Women and Children can be obtained on application to the office of the Royal Society for the Welfare of Mothers and Babies of New South Wales, Chief Secretary's Building, Bridge Street, Sydney.

Correspondence.

THE ACTION OF NOV-ARSENO-BILLON.

Sir: We notice in your *Journal* of 3rd instant a communication from Dr. A. E. Brown, in which he relates a series of disquieting reactions following the intravenous injection of nov-arseno-billon, and asks for the experience of others who have used this drug. During the past few years we have made many thousand injections of this preparation and from an extensive experience, find any serious after-effects to be exceptional.

It is true that the administration of any preparation of the arseno-benzol group is liable to be followed in susceptible individuals by minor side-effects or exceptionally by more severe reactions. But in the vast majority of cases no ill effect is experienced by the patient, provided that certain precautions be taken.

In the first place, if distilled water be used as the solvent, it should be prepared on the day of the injection, otherwise a rapid contamination with organisms is liable to occur, in which circumstances toxic symptoms are not infrequent. It was to this point that Wechselmann directed attention some years ago.

We prefer to minimize the risk arising from the use of impure water by injecting a small volume of liquid, not more than 5 to 10 c.cm..

Secondly, the drug should be carefully examined for any sign of deterioration, as evidenced by change in colour, and the solution made immediately prior to the injection. Nov-arseno-billon exposed to air very rapidly oxidizes, in which circumstances its injection may be attended by grave results.

In the third place, a careful system of dosage, with adequate intervals between the injections, should be employed. In the average case 0.3 gramme nov-arseno-billon is advisable as an initial dose, with intervals of not less than five days between any two administrations. Any local pain at the site of injection is due to the solution reaching the tissues outside the vein.

Further, we may say, we have used both kharsivan and nov-arseno-billon and have not found a greater percentage of toxic after-effects follow administration of the latter than of the former preparation. Where the incidence of reactionary symptoms is unduly high, as in the cases quoted, we would suggest it is due to omission of one or other of the precautions mentioned.

Yours, etc.,
NORMAN M. GIBSON.
C. J. WILEY.

233 Macquarie Street, Sydney.
July 8, 1920.

Proceedings of the Australian Medical Boards.

QUEENSLAND.

The undermentioned has been registered under the provisions of *The Medical Act of 1867* as a duly qualified medical practitioner:—

Joseph Patrick O'Hara, M.B., B.S., 1920 (Univ. Melb.), Brisbane.

The following additional qualification has been registered:

Lilian Violet Cooper, M.D., 1912 (Univ. Durh.), Brisbane.

Books Received.

PUBLIC HEALTH LABORATORY WORK (CHEMISTRY), by Henry R. Kenwood, M.B., F.R.S., D.P.H., etc.; 1920. London: H. K. Lewis & Co., Ltd.; Seventh Edition; Demy 8vo., pp. 420, with 85 illustrations. Price, 15s. net.

THE SYSTEMATIC TREATMENT OF GONORRHŒA IN THE MALE, by Norman Lumb, O.B.E.; 1920. London: H. K. Lewis & Co., Ltd.; Second Edition; Crown 8vo., pp. 123. Price, 6s. net.

BACKWATERS OF LETHE: SOME ANÆSTHETIC NOTIONS, by G. A. H. Barton, M.D.; 1920. London: H. K. Lewis & Co., Ltd.; Crown 8vo., pp. 151, with 11 illustrations, including two plates. Price, 5s. net.

TREATMENT OF THE NEUROSES, by Ernest Jones, M.D., M.R.C.P.; 1920. London: Baillière, Tindall & Cox; Demy 8vo., pp. 233. Price, 10s. 6d. net.

ATLAS FOR ELECTRO-DIAGNOSIS AND THERAPEUTICS, by F. Miramond de Laroquette, M.D., Authorized Translation by Mary Gregson Cheetham, with Foreword by Robert Knox, M.D.; 1920. London: Baillière, Tindall & Cox; Demy 8vo., pp. 180, with 69 illustrations. Price, 15s. net.

Medical Appointments.

During the absence on leave of Dr. T. J. M. Kennedy (B.M.A.), Dr. A. W. Marwood (B.M.A.) has been appointed Acting Quarantine Officer at Geelong, Victoria.

Under the provisions of *The Health Acts, 1900 to 1917*, Dr. J. Hornidge Chauncy has been appointed Medical Officer of the Venereal Clinics and Dispensaries established or to be established in the metropolitan area of Brisbane, and Medical Officer of the Detention Hospital at South Brisbane.

Dr. R. F. Le Souef has been appointed Public Vaccinator at Chelsea, Victoria.

The appointment of Dr. Edward Robertson (B.M.A.) as Chief Health Officer of the First Division of Victoria is announced in the *Victoria Government Gazette*.

Dr. C. H. Armitage (B.M.A.) has been appointed Government Medical Officer at Tumbarumba and Dr. A. V. Henderson at Hilliston, New South Wales.

During the absence of Dr. T. O. Chenoweth (B.M.A.), Dr. Stuart Kay (B.M.A.) has been appointed Acting Quarantine Officer, Acting Government Medical Officer, a Health Officer for the purposes of *The Health Acts, 1900 to 1917*, and Visiting Surgeon to His Majesty's Police Gaol, Mackay, Queensland.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser," page xxvii.

Sydney Hospital: Honorary Relieving Assistant Ophthalmic Surgeon.

University of Melbourne: Clinical Research Scholarship.

Medical Appointments.

IMPORTANT NOTICE.

Medical practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429 Strand, London, W.C.

Branch.	APPOINTMENTS.
VICTORIA. (Hon. Sec., Medical Society Hall, East Melbourne.)	All Friendly Society Lodges (other than the Grand United Order of Oddfellows and the Melbourne Tramways Mutual Benefit Society), Institutes, Medical Dispensaries and other Contract Practice. Australian Prudential Association Proprietary, Limited. Mutual National Provident Club. National Provident Association.
QUEENSLAND. (Hon. Sec., B.M.A. Building, Adelaide Street, Brisbane.)	Australian Natives' Association. Brisbane United Friendly Society Institute. Cloncurry Hospital. Stannary Hills Hospital.
SOUTH AUSTRALIA. (Hon. Sec., 3 North Terrace, Adelaide.)	Contract Practice Appointments at Renmark. Contract Practice Appointments in South Australia.
WESTERN AUSTRALIA. (Hon. Sec., 6 Bank of New South Wales Chambers, St. George's Terrace, Perth.)	All Contract Practice Appointments in Western Australia.
NEW SOUTH WALES. (Hon. Sec., 30.-34 Elizabeth Street, Sydney.)	Australian Natives' Association. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham Dispensary. Manchester Unity Oddfellows' Medical Institute, Elizabeth Street, Sydney. Marrickville United Friendly Societies' Dispensary. North Sydney United Friendly Societies. People's Prudential Benefit Society. Phœnix Mutual Provident Society.
NEW ZEALAND: WELLINGTON DIVISION. (Hon. Sec., Wellington.)	Friendly Society Lodges, Wellington, New Zealand.

Diary for the Month.

July 17.—Northern Suburbs Med. Assoc. (N.S.W.).
July 20.—N.S.W. Branch, B.M.A., Executive and Finance Committee.
July 21.—W. Aust. Branch, B.M.A..
July 22.—Q. Branch, B.M.A., Council.
July 27.—N.S.W. Branch, B.M.A., Medical Politics Committee; Organization and Science Committee.
July 28.—Vic. Branch, B.M.A., Council.
July 29.—S. Aust. Branch, B.M.A..
July 30.—N.S.W. Branch, B.M.A..
Aug. 4.—Vic. Branch, B.M.A..
Aug. 9.—N.S.W. Branch, B.M.A., Ethics Committee.
Aug. 10.—Tas. Branch, B.M.A..
Aug. 12.—Vic. Branch, B.M.A., Council.
Aug. 13.—N.S.W. Branch, B.M.A., Clinical.
Aug. 13.—S. Aust. Branch, B.M.A., Council.

EDITORIAL NOTICES.

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We are seeking copies of our issues of February 14 and 28, 1920. There has been an unusual demand on our stock, which is now depleted. Members who do not keep *The Medical Journal of Australia* for binding, are requested to send us their copies, on receipt of which the usual payment of the face value will be made.